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Psychological Adaptation of the Individual: The Processes of Coping, Defending, and Mastery and the Relationship to Stress

University — Université

University of Alberta

Degree for which thesis was presented — Grade pour lequel cette thèse fut présentée

Ph.D.

Year this degree conferred — Année d'obtention de ce grade	Name of Supervisor — Nom du directeur de thèse
1984	J.J. Kitchell & L.L. Stewin

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PSYCHOLOGICAL ADAPTATION OF THE INDIVIDUAL: THE PROCESSES OF COPING, DEFENDING, AND MASTERY AND THE RELATIONSHIP TO STRESS

by

(C)

GRETCHEN C. HESS

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1984

THE UNIVERSITY OF ALBERTA

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To

Alison and Heather

ABSTRACT

The research relevant to the study of adaptive processes and defense is examined in order to unify a fragmented body of literature. The author emphasizes an eclectic approach which utilizes theory and experimental data drawn from literature on medicine, psychoanalysis, stress and crisis, stress management, holistic health, counselling, learning, personality, child development, and socialization. The concepts underlying coping, mastery, competence, and defense are believed to be aspects of adaptation rather than competing theories. Only when the person, the environment, and their interaction are studied can research yield generalizations relevant to understanding humans in natural settings. The concept of health needs to be scientifically defined and evaluated in order to determine the relationship between stress and adaptation. Physiological and psychological definitions of stress need to be coordinated to understand the short and long term effects of stress within the coping processes. Research with children in natural settings which study adaptation to daily events is encouraged to aid understanding of the developmental and maturational aspects of dealing with stress. In light of rapid changes in current society and increasing demands for counselling, such understanding is deemed relevant and important.

In the empirical study, the author assumes a theoretical conceptualization of person variables and situational variables interacting to produce a stress reaction, which in turn influences choice of behaviour that can be measured on a continuum from

maladaptive to healthy. A self-report inventory (constructed by the author) was administered to eight groups of school children in Grades 3 and 9. The instrument yields scores on two scales: the Stress Perception Scale and the Adaptive Behaviour Scale. The relationships between three sets of variables--personological, situational, and effect (dependent)--are analyzed and discussed. The item analysis, reliability, and validity of the inventory are considered. The author concludes that the results do not disconfirm the theoretical interaction of person and situation in determining stress reactions and subsequent adaptive behaviours. More research is encouraged which is aimed towards building a comprehensive and unified theory of healthy adaptation.

ACKNOWLEDGMENT

The author wishes to thank Dr. John Mitchell and Dr. Leonard Stewin for their guidance and support as committee chairmen. Thanks are also due to the committee members: Dr. John Paterson, Dr. Eugene Romaniuk, Dr. Ken Ward, Dr. John Brosseau, Dr. Pierre Turgeon, and Dr. Robert Campbell.

The study was made possible with the courtesy and cooperation of the Edmonton Catholic School Board and the students and staff of St. Richard School, Cardinal Leger Junior High School, Mt. Carmel School, Our Lady of Fatima School, St. Angela School, and St. Clement School.

I also wish to thank my parents, Alison, Heather, and Rob for their consistent support through every stage of the writing of this dissertation and the completion of this degree.

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CHAPTER ONE

ADAPTATION: AN INTRODUCTION

In 1955 the first "store-front" suicide prevention centre in North America opened in Los Angeles. Within ten years every major city had such counselling facilities. As the public flocked to these crisis centres for emergency counselling, professionals analyzed their popularity--twenty-four hour crisis telephones, free counselling with minimal bureaucracy, walk-in contacts, and non-judgemental support for a multitude of problems emerging from the counterculture of the late 1950's and 1960's. People seemed to need help immediately. They wanted help in coping with daily events but were not necessarily searching for long-term analysis or personality change.

In the 1980's the atmosphere in crisis centres has changed. The influences of the Vietnam war and the cries for individual freedom have been subdued but the demand for counselling continues. Problems resulting from economic recession, interpersonal relationships, and social issues seem to be the focus of current concern. Maybe, as Martin Gross (1978) suggested, we have created a "psychological society" where people have become dependent upon psychological perspectives which have been developing since Freud. Others look to the rapidly changing environment to show cause as to why people seem to have difficulty coping and seek counselling. Both of these hypotheses emphasize the current need for help in

face of change.

Crisis intervention counselling is based upon the assumption that change is a threatening notion since old patterns of behaviour fail. The individual is forced to develop new means of coping and defending in an attempt to adapt to an environment which is in a seemingly constant process of change. However, even though people may feel threatened or insecure in a fluctuating atmosphere and seek help, having to deal with a stressful event or series of uncomfortable situations does not necessarily mean unpleasant outcomes.

The Chinese idiogram for crisis can be translated in two ways: danger or opportunity. By necessity an individual must rearrange his life or her thinking as the result of a severely stressful event. This reorganization or reevaluation may enable the person to meet goals or experience emotions which past forms of behaviour had prohibited. On the other hand, a crisis in addition to the daily stress of living may evoke behaviours in the person which are maladaptive and have negative consequences. People seem uncertain of how to proceed after experiencing a stressful event or an accumulation of daily pressures and need guidance and assurance for a healthy resolution.

The same uncertainties exist among professionals. While much research has been generated in the areas of crisis, stress, and coping, confusion still persists over clear definitions of the key concepts and the complex processes involved in adaptation. Mason (1975) claims: "The single most remarkable historical fact concerning the term 'stress' is its persistent, widespread usage in biology and medicine in spite of almost chaotic disagreement over

its definition." Rutter (1981) makes a similar claim for "coping" as White (1974) does for "adaptation."

The purpose of this study is to clarify the concept of adaptation and emphasize it central role for explaining the coping process in human beings. The lack of agreement among authors at present is partially due to the amount of research which has been generated in the fields of stress, coping, and adaptation and partially due to the diverse orientations of researchers who have contributed to the area. Cameron and Meichenbaum (1982) explained:

> Stress is a concept, that, though ill defined, has nonetheless attracted a great deal of scientific interest. The rapidly proliferating literature on stress is not only vast but also diverse. This exists because stress and adaptation have been conceptualized from many points of view. Anthropological...biological...cultural...ethological... and psychological perspectives are all represented in the literature. Moreover, individuals within disciplines have thought about stress in different ways, studied different phenomena, used different methodologies, and made different assumptions. (p. 695).

A thorough understanding of the adaptive processes requires an integration of these diverse views. Because much of the research in the various areas tends to be rather discrete, this study attempts to integrate several approaches. Equal emphasis is placed on the theoretical assumptions of adaptation and on the empirical study aimed at supporting them. The main question appears to be twofold: what constitutes healthy adaptation in the individual and how do individual differences and situational variables interact in evoking healthy adaptive responses?

An overview of the present study shows the direction the author takes to answer that main question. The beginning chapters expand

ideas which were introduced by Short and Hess (1983). In Chapter 2 the research relevant to the study of the adaptive processes of coping and defense is examined in order to unify a fragmented body of literature. The author emphasizes an eclectic approach which utilizes theory and experimental data drawn from literature on psychoanalysis, crisis intervention, stress and stress management, holistic health and change, counselling, learning, personality, child development, and socialization. A review of the language used in the literature suggests that the concepts underlying coping, mastery, competence, and defense are aspects of adaptation rather than competing theories.

Only when the person, the environment, and their interaction are studied can research yield generalization relevant to understanding real people in real life. Therefore in Chapter 3 the person-situation interaction controversy is explored. Those variables shown to be important in the study of adaptation from person or situational orientations can be termed "mediating factors" from an interactional perspective. The concept of stress takes on an important role within the adaptive processes once an interactional orientation is adopted.

However, in order to understand the relationship between stress and adaptation, the concept of health needs to be scientifically defined and evaluated. In Chapter 4, the author concludes that although a comprehensive definition of health seems impossible at present, Vaillant's (1977) hierarchy of ego mechanisms is a valuable theoretical construct upon which to evaluate healthy adaptation. In future research physiological and psychological

definitions of stress need to be coordinated to understand the short and long term effects of stress within coping processes. Research with children in natural settings which study adaptation to daily events are encouraged to aid the understanding of the developmental and maturational aspects of dealing with stress. In light of rapid changes in current society and increasing demands for counselling, such understanding is deemed relevant and important.

The second half of the current study involves empirical research on stress and adaptation. First, the author reviews the methodological problems in adaptation research in Chapter 5. Published inventories of adaptation and stress are evaluated, and problems in research design and data analysis are discussed.

In the empirical study, the author assumes a theoretical conceptualization of person variables and situational variables interacting to produce a stress reaction, which in turn influences choice of behaviour. This resulting behaviour can be measured on a continuum ranging from maladaptation to health. In Chapter 6, the design and methodology of the empirical study is described. Eight classroom groups of school children in Grades 3 and 9 were given a self-report inventory (constructed by the author) which yields scores on two scales: the Stress Perception Scale and the Adaptive Behaviour Scale.

The data from the current study were analyzed and the results are presented and discussed in Chapter 7. The relationships between three sets of variables, personological, situational, and effect (dependent), are considered. The item analysis, reliability,

and validity of the Student Inventory are also discussed.

In Chapter 8 the author discusses the implications of the current study for acceptance of an interactional orientation in future adaptation research. It is concluded that the results do not disconfirm the theoretical interaction of person and situation in determining stress reactions and subsequent adaptive behaviours. More research is encouraged which is aimed towards building a comprehensive and unified theory of healthy adaptation.

CHAPTER TWO

THE ORIGINS AND LANGUAGE OF ADAPTATION

Authors from several diverse fields have been influential in developing current concepts of adaptation. These fields are briefly reviewed here to establish the historical background, to show the breadth of the research, and to emphasize the isolation of research on the adaptive process. It is this author's belief that the literature must be consolidated, both in concept and in language, in order to focus and direct future research. First, consider the origins.

Diversity and Isolation of Approach

Psychoanalysis

Psychoanalysis, with its central concept of ego defense offers the historical impetus for current research in adaptation. Studies of defense offer the most comprehensive approach to understanding inner psychological processes of adaptation and thus contribute directly to understanding healthy adaptive processes.

Freud's (1893-1908/1964) original hierarchy of defense has remained relatively unchallenged by psychoanalysts but has yet to be empirically supported. The very nature of ego defense makes such validation difficult since the mechanisms are unable to be studied directly, having to be inferred from their association with particular behaviours and because of their either short-lived or "life-style"

nature. The mechanisms of defense are an important theme throughout the paper.

Crisis Intervention

The psychiatric perspective adopted by E. Lindemann (1944) in his study of victims of a nightclub fire and Caplan's (1964a, 1964b, 1969) subsequent studies initiated the field of study called "crisis intervention." Aguilera and Messick (1978) have claimed that a crisis occurs when an individual's sense of equilibrium is thrown out of balance by a stressful event and that person is lacking any one of three balancing factors: a realistic perception of the event; adequate situational support or adequate coping skills. Research has concentrated on the individual reactions to extreme external stress, such as death or illness, and the consequent intervention by crisis workers (Getz, Wiesen, Sue, & Ayers, 1974; Golan, 1978; Spector & Claiborn, 1973).

Stress and Stress Management

A body of literature closely related to crisis intervention, is that of the effect of stress on the physiological make up of the person. Selye (1956) has written that physically noxious stimuli arouse a purely biological coping or defensive reaction; a cycle he named "general adaptation syndrome." R. S. Lazarus (1961, 1977) has stated that the emphasis on biological response negates the cognitive and psychological components, which may account for the variations in physical measures of stress within populations undergoing similar trauma. For example, research by Katz, Weiner, Gallagher and Hellman (1970) demonstrates a wide range of psychological responses from women with similar hydrocortisone production rates.

The application of research emphasizing the biological effects of stress include the training of subjects to reduce physiological indicators of stress by focusing on direct control of the response, rather than the cause of the problem. The three most common approaches have been autogenic training (Pelletier, 1977), biofeedback procedures (Brown, 1977), and progressive relaxation (see Bernstein & Borkovec, 1973, for a training manual based on Wolpe & A. A. Lazarus, 1966, and Jacobson, 1938).

Holistic Health and Stress

Pelletier (1979) has criticized the compartmentalization of the above three approaches and urges the unification of psychology and medicine in an holistic manner. The roots of this perspective lie in retrospective studies linking physical disease, personality, and life-style. Habitual ways of coping are viewed as reflecting a life-style which is correlated with the occurrence of specific disease later in life (e.g., heart disease in Friedman & Rosenman, 1974; Lynch, 1979). Totman (1979) has concentrated on the social role in health and illness, emphasizing that to see a cause and effect relationship between stress and illness negates the importance of an individual's goals, motivations, and frustrations. The holistic health view argues against mechanistic approaches to fixing the "bad" parts, believing that the prevention or cure of illness is dependent upon maintaining a healthy life-style.

Change-Loss Literature

Emphasizing the stress in life changes, several authors have developed theories following the classic study by Holmes and Rahe (1967). Recent research had focused on identifying various

types of change and theorizing on its effect. Klinger (1977) has focused his research on the "Incentive Disengagement Cycle," the process of invigoration, aggression, depression, and recovery, the cycle one must go through after a loss. Marris (1974) has concentrated on change and had shown differing effects when the change was a mere replacement, a logical growth fulfilling progression, or an unanticipated disrupting change. Many such theories emphasize how an individual views a particular change and offer an alternative to earlier life-event studies which were based upon the assumption that all change had a negative, distressful effect.

Counselling and Skill Training

The largest body of literature which is relevant to understanding healthy adaptation is that of counselling psychology and psychotherapy. The objective of most therapeutic approaches centres upon helping a client organize internal defenses and perceptions in such a way that it will enable him/her to cope in the environment. However, the theoretical basis underlying clinical practice contributes little to the understanding of how coping skills develop, how they are expressed, or why certain skills aid or limit adaptation. Too often counselling involves training clients in specific skills, such as communication (Satir, 1972) or assertion (Jakubonski-Spector, 1973) with little regard for the inner psychological processes or biological responses of the individual.

Learning Theories

When coping skills are defined behaviourally, then approaches such as social learning theory can offer possible solutions to the question of how coping skills are acquired. Studies which have

demonstrated the prevalence of imitative learning in the acquisition of social behaviour are particularly pertinent (Bandura & Walters, 1963). Similarly, traditional reinforcement theories can explain why an individual acquires specific response patterns (coping skills) to particular environmental stimuli (stressors). However, most authors who focus on coping and adaptation emphasize the role of psychological processes and therefore behavioural theories have typically been ignored. The neglect of behavioural interpretations is viewed as a serious limitation for an indepth analysis of healthy adaptation.

Cognitive learning theories, however, have been directly implicated in coping and defensive processes. Some researchers incorporate research on adaptation issues into accepted theories of learning, such as Piaget's (Chandler, Paget & Koch, 1978; Elkind, 1976). Many others whose research was begun in the stress areas emphasize the importance of the cognitive component in learning to cope with stress (Lazarus, 1977; Murphy, 1974). Recently comprehensive and complex models of stress and cognition have been published (Hamilton, 1982; Taylor, 1983). The word "appraisal" is frequently used in recent studies to describe subjective thinking rather than the more objective "cognition."

Personality and Adjustment

From a traditional trait theory of personality, coping behaviours are purely the expression of a dominant trait. This view offers a relatively simple explanation of why people cope in a given way; it is on the basis of either inherent or acquired predispositions. Current personality assessments are completed in a laboratory setting.

Bem and Funder (1978) have questioned the "ecological validity" of such assessments believing that people may not behave in a laboratory setting in the same way they do in real life. Thomas, Chess, and Birch (1970) stated that the heredity-environment debate merely confuses the issue when applying personality research to real life situations. Rather than debating whether the individual has had a particular temperament from birth or has acquired it in response to the environment, researchers should concentrate on the variables involved when a person does not show typical maladaptive behaviour, but instead demonstrates more adaptive coping-skills. A third criticism focuses on the individual, the environment, and their resulting interaction. Bem and Allen (1974) and Bem and Funder (1978) saw the trait approach as failing to take into consideration the specific conditions of the general environment that interact with the personological qualities of the individual. Thomas et al. (1970) believe healthy development can be expected if the person and the environment are well integrated.

Developmental Psychology

Developmental psychology can be viewed as offering the potential for integrating the disparate research on coping, learning and personality with specific studies of stress in children. However, only a few studies have focused on adaptive processes in children (Rutter, 1981). Typically when a child's or adolescent's reaction to stressful events have been studied, the methodological format has been similar to that used with adults. The relationship between the subject and stressful events has been investigated with little consideration given to the age of the subject (e.g., Silber, Hamburg,

Coelho, Murphey, Rosenberg, & Pearlin, 1961). What appear to be needed are cross-sectional studies comparing the coping methods used by children at various ages who are all involved in similar stressful events. A start in this area has been made by a few researchers. Engel (1962) hypothesized a correlation between level of maturity and the use of specific defenses. Elkind (1976) has integrated Piaget's cognitive stages and Freud's defense mechanisms. Chandler et al. (1978) studied children of different Piagetian levels and related this to their ability to interpret general transformations of emotion used in defense mechanisms. These studies, however, relate to intrapsychological mechanisms of ego defenses and fail to incorporate the more comprehensive concept of adaptation. The results of environment/coping interactions and personality/coping interactions are usually not taken into consideration.

Some longitudinal studies on adaptation in children have contributed to the literature (Kohn, 1977; E. B. Lindeman & Ross, 1955; Magnusson, Duner, & Zetterbloom, 1975; Murphy, 1974; Murphy & Moriarty, 1976; Vaillant, 1971). However, more are needed to solve several developmental issues: whether children develop styles of coping over time, whether adaptive maturity is continuous or stage-related, and whether critical periods exist.

Recent articles indicate that future developmental research may include more specific studies on adaptation. Sroufe (1979), in arguing for the position that the child is a coherent person in a coherent developmental process, has favoured an eclectic perspective and urged research which emphasizes adaptation.

Social Psychology

The eclecticism reflected in the fields of development and personality is further highlighted in the research on socialization, particularly among writers concerned with adaptation. Toffler's (1970) concept of "future shock" is often quoted as indicative of the social relevance of the area: "It is clear that if we are to survive the storm [of too rapid change] individually and collectively, our adaptive qualities will be strained to the utmost" (Braunwald, 1972, p. 1031). Yet Toffler (1970) and others (Moos, 1974; White, 1974) have lamented on how little is actually known about adaptation. An eclectic approach seems to offer the most appropriate method for building a comprehensive theory of adaptation.

Moos and Tsu (1976) cited five influences which have shaped current interest in the field. Two have been included in this paper: stress literature and crisis intervention. The other three represent diverse philosophical positions: (1) evolution and adaptation (see Hamburg, Coelho, & Adams, 1974, for a review), (2) human fulfillment and growth theories of Rogers (1961) and Maslow (1954), and (3) the developmental life cycle focus of Erikson (1963).

The feature common to all three positions is the underlying duality inherent in each. Evolutionary theory involves an interaction between the internal variation in the reproduction and inheritance of living organisms (which is viewed as being creative and positive) and the external factor of natural selection (which is seen as being destructive and negative). The term "adaptation" is indicative of evolutionary origins. The humanistic theories emphasize adaptation

in terms of fulfilling human potential through growth and deprivation motivation, and Erikson's psychosocial stages can be viewed as a challenge in adapting to the concerns in critical periods, which are expressed in dualities.

The Language of Adaptation

One of the main problems of consolidating the diverse literature in order to focus upon the adaptive process is the lack of common terminology. Garmezy (1977) has noted fourteen words, often used interchangeably, which are necessary even to conduct a computer search of the area: achievement, adaptation, social adjustment, personality and adjustment, coping, emotional security, emotional maturity, emotional stability, mental health, psychological stress, psychological development, self-esteem, and stress reaction. Add the terms defense mechanisms, mastery, morality, social skills, and social competencies. The concepts and definitions underlying these key terms overlap. White (1974) has argued that adaptation is the generic term since other key concepts can be subsumed under the phrase, "strategies of adaptation." To facilitate the integration of medical, psychological, and social perspectives, White's logic seems appropriate. First, consider the most commonly used alternatives.

Stress

Rarely does an article, chapter or book on stress begin without statements bemoaning the lack of clarity in defining the concept. Often quoted is Beach (1950), who observed that "if the word [stress] is going to refer to everything from homeostatic mechanisms...to cerebral activity..., we are apt to arrive at a very inclusive but

equally indefinite concept" (p. 119). At present we seem to have just such a concept. The term can refer to an external environmental stimulus, an internal response, an interaction between environment and person, or can have a complex specialized meaning which combines any or all of the other factors (Mason, 1975). For example, Selye (1956, 1982) uses a general definition of stress as the "nonspecific (common) result of any demand on the body," (1982, p.7) and refers most often to physiological reactions. Holmes (1979) consistently uses stress to mean those events coming from outside which generally are regarded as stressful in the sense of personal or social upheaval. Horowitz (1976) has referred to stress as "cognitive disruption." Lazarus and his associates (Holroyd & Lazarus, 1982; Lazarus & Launier, 1978) define stress with reference to both the person and the environment and the relationship between the two.

Haan (1982) has argued that common sense is needed to resolve the "crisis in stress research" (Rose & Levin, 1979). Stress cannot now be understood or assessed apart from the ways people interact with it, so the term can now only be defined consensually in layman's terms. Selye (1982) used the analogy of <u>heat</u> to explain the divergent and confusing definitions of <u>stress</u>:

> ...just as we could have no reason to use a single word in connection with the production of light, heat, cold, or sound if we had been unable to formulate the concept of energy, which is required to bring out any of these effects. My definition of <u>stress</u> is <u>nonspecific</u>. (p. 7)

A host of stimuli are capable of producing stress, such as fear, pain, fatigue, effort, threat, injury, loss, emotional or artificial chemical arousal, joy, success, surprises. Several

mediating variables affect the strength and duration of the stimuli, such as cognitive appraisal, motivation, situational, or emotional support, adequate coping or defensing skills. Many personological and personality characteristics which can be seen as traits or merely relatively static variables also affect the past, present and future of the interaction. Stress plays a part in all aspects of the process and cannot be isolated or defined, at least at this point in the development of the concept (see Mason, 1975, and Selye, 1982, for an historical review of the term). Therefore, while stress is a central concept in the present study, it will only be used in a general sense as part of an interactive process between the individual and the environment.

Defense

Defined as "an unconscious intrapsychic process, protective in nature, and used to relieve the anxiety and conflict arising from one's impulses and drives" (Freedman, Kaplan, & Sadock, 1976, p. 1294), a defense mechanism is the forerunner of the more generalized term "coping skill." Freud (1893-1908/1964) and later Anna Freud (1936/1946) postualated the existence of more than a dozen mechanisms including compensation, denial, displacement, dissociation, intellectualization, projection, reaction formation, regression, repression, sublimation, and suppression. The importance of Freud's concept is emphasized by Vaillant (1971): "The conceptualization of the ego mechanisms of defense remains one of the most valuable contributions that psychoanalysis has made to medicine" (p. 107). However, Vaillant (1971) and Schafer (1968) have noted that definitions precise enough for transition to valid and reliable

clinical diagnosis have yet to be formulated.

While earlier ego psychologists saw the use of defense mechanisms as pathological, the more recent trend has been to view them as adaptive devices gone wrong (White, 1974), the types of coping skills used when a person feels threatened (Murphy, 1974), or mechanisms that are adaptive if used flexibly (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960). The idea that defense mechanisms are often healthy devices used by normal individuals is important if the psychoanalytic literature is to be incorporated into a broader, more modern concept of coping and adaptation. The fact that implementation of the mechanisms is defined as being "an unconscious process" is often ignored in application (Vaillant, 1971).

However, "defense" seems unsuitable as a comprehensive term because of its psychoanalytic origin and its negative connotations of "doing battle." The theoretical assumptions behind the use of defense mechanisms include a Machiavellian conception of humans as evil and selfish and a Freudian view of society as a necessary civilizing medium to control the impulses and cravings of individuals. Both concepts are incompatible with a belief in growth motivation, which is central to adaptation. Also, defense refers to psychological processes which serve as protection of self and is not used to describe actions motivated towards changing the environment. Most authors impute ego defenses with a negative connotation and believe it can only be considered non-pathological when limited in time and amount. As Mussen, Conger, and Kagan (1979) explain: "While everybody uses defense mechanisms, strong dependence on these and their pervasiveness in the individual's behavior may be associated

with frequent and gross distortions of reality and failure to cope adaptively with psychological problems in the real world" (p. 368).

Coping, Coping Skills, and Coping Strategies

Also unacceptable as an inclusive term is "coping" or its various alternatives, coping skills or coping strategies. Here, the definitional problems stem from the popularity of the term in common usage. As researchers attempt to make the term explicit, the varying connotations become obvious. In contrast to "defense," the assumptions underlying "coping" include a view of the environment and society as negative phenomena with which an innately good person striving for attainment of his or her potential has to contend. The meaning of "coping" often implies that the person alone, rather than the person or the situation, has to change. For example, Wolman (1973) had cited Maslow as the originator of the term and has defined coping behaviour as "a behavioral pattern which facilitates adjustment to the environment for the purpose of attaining some goal" (p. 79).

From a social work perspective (Aguilera & Messick, 1978), coping often infers the use of tangible skills, concrete actions such as taking a bath to relax, learning to communicate, or reorganizing a daily schedule. In this way, coping deemphasizes the inner psychological processes.

De Bono (1977) viewed the term disdainfully: "Cope implies just enough competence to stop things developing into a crisis... does not imply brilliance or the solution of problems...It is enough that the situation is contained" (p. 50). White (1974) has complained because the term refers only to disaster research,

while Lazarus (1966) originally used it only in situations involving threat.

Lazarus and his associates (1974) have since broadened their definition to reflect the thinking of Murphy (1962): coping is "any attempt to master a new situation that can be potentially threatening, frustrating, challenging, or gratifying" (p. 250). Further refinement has caused Murphy (1974) to differentiate between "Coping I" and "Coping II." The former parallels her earlier definition, whereas "Coping II" involves the capacity to maintain internal equilibrium. Thus, she has used "coping" as the generic term which includes problem-solving skills, active efforts, and defense mechanisms.

In contrast Haan (1982) has distinguished between coping and defending from lay dictionary meanings. Coping has a more healthy meaning since it is not a protection, it is a "reaching out or within for resources to come to terms with difficulties," not necessarily to overcome them (p. 256). Haan's distinctions seem to be the most commonly understood and accepted and therefore will be used throughout the present study.

Mastery

The term "mastery" as applied to overcoming or dealing with stressful events is too vague (White, 1974). It implies an end product or a completed task, either of which is incompatible with the view that adaptation is a process. Clinically it is doubtful if a practitioner could announce that one had "mastered" an adaptive problem in the same way an educator might claim one had mastered a mathematics problem. The latter implies a concrete set

of skills. Adaptive problems are usually more complex, requiring a fluidity of response over time as the effects of a life event or daily stressful events unravel. Certainly researchers have yet to uncover robust elements which maintain meaning across situations and across individuals. Until these elements are isolated and agreed upon, the concept of mastery is limited in research.

Even though mastery is an unsuitable term for the whole concept of adaptation, one aspect of mastery is gaining popularity in the literature: mastery in the sense of control. Following a study with cancer patients, Taylor (1983) has concluded that attaining a feeling of control over the threatening event is essential to the adjustment process. Some patients' efforts at mastery involved a belief in a positive attitude; some used specific techniques such as mediation or fantasy (Simonton & Simonton, 1975); others attributed a cause to the cancer that no longer had an effect, such as bad marriage, now ended; others changed diet or life-style or read a great deal about the illness; others sought to control the side effects of the cancer. In each case, having a sense of control over the event in particular and a regained sense of mastery over life in genreral was important to enable a patient to carry on. Taylor's research illustrates a trend in the literature which emphasizes one's control or sense of control as important when effectively dealing with stress. Mastery also has a more positive connotation than coping or defending. One who "masters" has done well in handling a challenge, both in a short and long range. The positive aspects of the mastery concept are important components in defining healthy adaptation.

Competence

Closely allied to the concept of mastery is "competence." First suggested by Foote and Cottrell (1955) the term was used to mean a specific set of skills that give a person control over his intrapersonal relationships and the best chance to achieve his or her potential in the world. The skills involve six components: physical health, intelligence, empathy, autonomy, judgement, and creativity. Later Smith (1968) who was influenced by White (1959;1964) emphasized efficacy and hope, potency, and the setting of goals which have a moderate challenge. Smith has argued that such goals are relevant regardless of the culture surrounding the individual. Other authors have found early definitions too confining and have opted for a more general definition of "a set of skills which are essential to cope with existing realities" (Conelly & Bruner, 1974, p. 4).

The use of the word "reality" is usually in definitions of competence, and it is that word which is the most problematic in combining philosophical frameworks. The word reality in this context implies the existence of an external reality and suggests a consensual list of qualities necessary for competence across people and across situations. The wording in that list would have to be very general to ensure consensus, and such a definition would be impossible to operationalize for research.

Most recently in the literature, the cross-cultural aspects of competence are under scrutiny. Lazarus (1975) has pointed out that writers emphasizing competence regard its attainment in terms of and individual achieving personal goals and contributing to society through maintaining useful social roles. Societies may regard

different roles as beneficial but a competent person has a better chance of actualizing him or herself and/or doing what is important to the society than a person who is judged incompetent. Ogbu (1981) has argued that in research studies of competence, the concept implies a set of standards or external reality by which to judge competence and which is culturally specific, usually "a white middle-class type of success in school and society" (p. 414).

The link to society, cultural standards, and external realities limits the usage of the word competence in an adaptive context. Because of the similarity between the terms mastery and competence and because the former seems to be both more precise and comprehensive in developing themes of achievement and accomplishment, mastery is used in the current study.

Adjustment

Current definitions of adjustment frequently seem synonymous with those of adaptation (Magnusson, Duner, & Zetterbloom, 1975). In his definition Wolman (1973) has stressed an interactive, harmonious relationship between person and situation involving the ability to satisfy individual needs and meet demands. However, Wolman also described adjustment as "a fairly, permanent, habitual form of behaviour" (p. 10), which implies an end product, not a process. The term seems to carry connotations which distort the similarities to the term adaptation. As a verb, "adjust" seems to lose the reciprocity of interaction and connotes "changing oneself." Murphy (1974) chose the term "coping" for her studies "because the concept of adjustment is so loaded with honorific implications, and maladjustment is so pejorative," (p. 74).

The difference in meaning between adaptation and adjustment may simply be a reflection of the changing issues in the literature over time. Adjustment is an older term, more commonly used in the 1959's and 1960's than currently and therefore reflects only the beginnings of the era of stress research. Current anthologies on stress fail to index the term (Coehlo, Hamburg, & Adams, 1974; Goldberger & Bresuitz, 1982; Monat & Lazarus, 1977). Most often adjustment is used in connection to personality research, especially in educational settings. Yet the title of Taylor's (1983) recent study illustrates the ambiguity: "Adjustments to Threatening Events: A Theory of Cognitive Adaptation."

Adaptation: Intellectual

Before concluding this section on the definition of terms with a generic view of "psychological adaptation," two specialized definitions of "adaptation" need to be considered: Piaget's concept and that used with reference to intelligence testing. Piaget (Brainerd, 1978; Ginsburg & Opper, 1979; Piaget, 1952) used the term "adaptation" or "adaption," depending upon the translation. He believed that organization and adaptation were the two "functional invariants," inherent qualities, characterizing all biological and cognitive activity. Adaptation is comprised of the twin processes of "assimilation," relating new information to already existing cognitive structures, and "accomodation," modifying the existing structures to assimilate the new information. These terms were defined in order to explain the development of cognitive processing as it relates to learning and intelligence. Throughout his work, Piaget's emphasis was upon the mastery of

concepts and the stages through which children pass in developing formal operational thought. Piaget's concept of adaptation is not incompatible with more recent definitions of the term; rather, his conceptions, stages and research represent a specialized tangential body of literature, the evolution of rational of thought.

The word adaptation is frequently used with reference to intelligence testing. In defining "intelligence" authors have consistently included the idea that the ability to adapt to one's environment is a part of the concept (Binet, in Terman, 1916; Freeman, 1955; Helms & Turner, 1981). Some intelligence tests include the adaptation factor in a way which is consistent with the definitions used in the present review. For example, the Comprehension Subscale on the Wechsler Intelligence Scale for Children (WISC) (1949) and the revised version (WISC-R) (Wechsler, 1974) consists of questions which present a variety of problem situations children might face. The items rarely elicit precise answers as do the other parts of the test, and responses often reveal personality adaptive or maladaptive traits (Sattler, 1982).

The most widely used definitions of mental retardation also illustrate the close association, yet the distinction, between "intelligence" and "adaptation:"

> Mental Retardation refers to significantly subaverage general intelligence functioning existing concurrently with deficits in adaptive behaviour...(in Sattler, 1982, p. 424)

Perusal of the subscales of adaptive behaviour inventories used to assess mental retardation reveals that adaptation refers to the acquisition of daily skills such as getting dressed, using transit

or finsihing a meal.

More frequently, however, adaptation is used as a general term and includes skills in mathematics or vocabulary as well as mechanical manipulations. Therefore, a score on an intelligence test can be said to reflect a person's intellectual adaptation but not necessarily his or her psychological adaptation.

Adaptation: Psychological

Psychological adaptation is a comprehensive term and incorporates the processes of coping, defending, and mastery. It has both psychoanalytic origins (Hartman, 1958) and ecological, biological roots (Dubos, 1980). Sroufe (1979) defines adaptation as follows:

> Children's [and adults'] engagement of the environment, fitting and shaping themselves to that of the environment and effecting changes in the environment to satisfy needs. The child does not merely act to environmental events but seeks stimulation and selects and organizes behaviour in terms of his or her own goals. (p. 135)

This definition emphasizes several features of adaptation. First, it is an active involvement rather than a passive maintenance. Vaillant (1971) claimed that defense mechanisms "have more in common with a possum vigorously and skillfully playing dead than with the utterly inanimate defensive shell of a tortoise," (p. 107). Coping skills which are typically considered to be more active, involving cognitive organization, balancing, reframing as well as talking and doing. The inclusion of mastery emphasizes defending and coping strategies are goal-oriented. Second, adaptation is not a task which can be completed, but a process reaching towards multiple, complex, and interrelated goals over time. All aspects

of the process are constantly in a state of flux: environments change, goals are altered, behaviours vary. Third, attainment of the goals is dependent upon an individual having coping capabilities and motivation to meet demands in such a way that he or she maintains psychological equilibrium and self-esteem (Mechanic, 1974). Thus adaptation is both anticipatory and protecting. And fourth, Sroufe's definition highlights the interaction between person and environment where change is effected on both sides, all within the cultural and social context. The last point cannot be over emphasized and needs further explanation.

CHAPTER THREE

PERSON-SITUATION INTERACTION CONTROVERSY

Traditionally, research on adaptation has focused either upon the qualities of the individual attempting to cope with specific situations or with the situational components with which he/she is contending. Contemporary research on personality and on socialization suggests that both approaches limit the generalizations to be drawn and that such artificial distinctions in emphasis further dichotomize thinking.

It has become a current truism in psychology that neither environmental nor personological variations alone can account for human performance. To be successful, psychology must begin to consider the variance which is attributable to the interaction of these two forces in order that a true predictive approach may evolve (Short & Pagliaro, 1981).

Person Orientation

The most common approach in researching the adaptive processes is to concentrate on person factors as the main determinants of behaviour. Within personality psychology, two models—psychodynamic and trait—emphasize the person although their measurement models, types of data collection methods differ greatly (Magnusson & Endler, 1977).

Psychoanalytic ego defenses are viewed as "habitual, unconscious, and sometimes pathological mechanisms" employed to resolve conflict

between instinctual needs, internalized prohibitions, and external reality." The purposes of ego defenses are to alter perceptions of internal and external reality: (1) to manage affect within bearable limits; (2) to postpone or redirect biological drives; (3) to integrate changes in self-image; and (4) to handle unresolvable conflict with significant others, (Vaillant, 1971, p. 107). Clearly all the changes theorized by Vaillant to be brought about by defense mechanisms are internal cognitive or emotional changes, not direct alterations in the environment.

Trait personality researchers attempt to find consistencies within persons which predict specific behaviour. Ratings of personality characteristics by self and others have been found to be stable over time with reliable multiple measures (Block, 1977; Mischel, 1979). However, such continuity over time with personality variables coexists with the reality that people employ a wide range of behaviours when adapting to an ever-changing environment. Thus, researchers are seldom able to break the ,30 correlation barrier when comparing trait ratings and real-life behaviours (Mischel, 1968). However, the low correlations should not be misinterpreted as a postulation for more emphasis on situations but as an argument for the merging of social learning theory and personality theory to study the person, the situation, and the interaction between them. In this way researchers can fully understand the depth of individual differences previously believed to be within the person (Mischel, 1973).

Like trait research most research on stress and stress reduction concentrates on the individual--his/her psychological and physiological reactions to stressful events. The research involves the manipulation of stressors within a laboratory setting or the isolation of a single

stressor in a natural setting (see, for example, Glass & Singer, 1972, on noise). In both cases the environment is controlled while the person is studied. Several authors focus still further by separating the biological and psychological responses. Lazarus (1961, 1977) and Mechanic (1962) argue that the totally biological view of stress and its control through the reduction of visceral or motor reactions should be called "direct control of emotion," not "coping" (Lazarus, 1977, p. 154). Coping, on the other hand, is believed to involve direct efforts to deal with the problem causing the stress either through direct action or psychological defense mechanisms. Hamburg, Coelho, and Adams (1974) distinguish the two concepts but suggest that they be merged in order to fully understand humans within their natural environments.

Studies of stress reduction encouraged practitioners to develop skill training sessions for clients. During the 1970's several strategies for improving communication were developed. Gordon (1974, 1975) trained teachers and parents to communicate with children and adolescents. Satir (1972) wrote that family members often developed a set pattern of coping, such as placating or distracting, which blocked open communication within the family. Other specialized skill-traing included programmes in encounter and sensitivity training (Kaplan & Sadock, 1972). In educational settings are strategies directed towards improving social skills (Cartledge & Milburn, 1972), clarifying personal values (Simon, Howe, & Kirschenbaum, 1972), or developing skills in decision-making (Hasling, 1975). These and similar programmes are relevant to the study of adaptive processes in that each strategy offers training in a specific coping skill that is important for achieving competence within society. Some of the skill training strategies went beyond a person orientation. The

programmes which not only offered skill training but also studied how the increased use of the specific skill changed the client's environment seem closely associated with an interactionist position. However, when some programmes failed to consider the environment of the clinet, it is questionable whether the client learned flexible adaptation or merely new rote responses.

In reviewing the basic themes of recent stress research Breznitz and Goldberger (1982) have lumped many of the stress management and coping strategies under the heading, "The Optimistic Bias." They have noted a shift from research which emphasizes anxiety (an internal, individual problem) to that which highlights stress (an external, situational problem). This "displacement in focus" is based upon the assumption that any individual can cope effectively with stress and control stressful situations given the right skills, an assumption which "may to a certain extent account for the proliferation in Western societies of simplistic techniques of stress management" (p. 5). Such optimism is believed to be better focused upon the development of the concept of health in psychology, where health is more than "an absence of disease" and stress can be used for gain.

Situation Orientation

Other authors have focused on the situation facing the person undergoing stress or crisis. In a classic study Holmes and Rahe (1967) constructed a list of stressful events which they found to be valid cross-culturally. Of the events on the list, some are generally considered to be positive (a holiday) or negative (death of a spouse); many have to do with family members (nine of the top fifteen); and

most are accidental or situational crises rather than developmental crises (marriage, children leaving home, puberty). Rahe and Arthur (1968) concluded that the chance of illness increases with a rise in the number of stressful events experienced. While the studies did not yield information on the factors involved in coping, their findings have aided researchers in planning quasi-experimental studies involving typically stressful events in an attempt to isolate the effects of environmental stress. Extensive research was generated and numerous instruments were developed adopting the Holmes and Rahe framework. Holmes (1979) estimated that during the 1970's over 1,000 publications appeared based on his Social Readjustment Rating Scale alone. Clearly a relationship was established between the experience of stress, measured by life events scales, and a myriad of physiological, medical, and psychological conditions (Dohrenwend & Dohrenwend, 1979; Perkins, 1982).

Stemming from the life-event research, a body of literature highlighting the area of disaster research has developed the concept of coping. Research has been undertaken on the effects of natural disasters such as tornadoes (Moore, 1958), social disasters such as combat neurosis in was (Blank, 1982; Glass, 1957), illnesses such as breast cancer (Katz, Weiner, Gallagher, & Hellman, 1970) and general surgery (Janis, 1977), sexual deviance such as rape (Sutherland & Scherl, 1970), death (Kubler-Ross, 1975), loss in general (Marris, 1974), developmental changes such as anticipation of college (Silber et al., 1961), accidents (Selzer & Vinokur, 1974), and academic performance (Lloyd, Alexander, Rice, & Greenfield, 1980). Such studies have emphasized that some patterns of coping within

situations are evident. For example, denial is common in dealing with death (Kubler-Ross, 1975), and feelings of shame and subsequent withdrawal are frequent after rape (Sutherland & Scherl, 1970).

More recently, authors have studied the effects of modern environmental stress. With a view towards affecting change in the particular environment researchers have studied heat (Bell, 1981), air pollution (Evans & Jacobs, 1981), crowding behaviour (Epstein, 1981), noise (Cohen & Weinstein, 1981), the urban physical environment (Kaminoff & Proshansky, 1982), occupational stress (Holt, 1982), and job loss (Kasl & Cobb, 1982),

Since the assumption that people react similarly to laboratory conditions and to natural stimuli has not been supported, research on reactions to potential crisis situations is especially important because of its setting in the natural environment. Baumrind (1980), Moos (1974), and Murphy (1974) have all urged researchers to conduct studies with real-life situations. However, the generalizability of findings from crisis studies is still in question. Even though situations were made as similar as possible for each individual in each study, subjects were different ages, had different cohort years, were different sexes, were from different socio-economic groups, and came from different cultural and subcultural groups. The importance of such differences can only be crudely estimated at this point. As well, the question as to whether individuals use the same coping devices in crisis situations as in every-day life remains to be answered. White (1974) questions why "nobody has chosen going to school for the sixty-third time as an occasion for coping" (p. 48).

A further critique of situation oriented-research is important

in terms of understanding healthy adaptation in the individual. Dohrenwend, Adkenasy, Krasnoff, and Dohrenwend (1982) defended the use of life-event scales and similar methodologies and proposed a complex model to overcome often criticized limitations in past scales (Brown, Sklair, Harris, & Birley, 1973; Sarason deMouchaux, & Hunt, 1975). The Psychiatric Epidemiology Research Interview Life Event Scale (PERI Scale) proposed by Dohrenwend et al. (1982) does seem to alleviate some of the problems which have become issues in the situation-oriented literature: for example, the issue of whether weighted scales (weighted as to amount of generally perceived stress in an event) or unweighted scales (merely counting events) have a greater predictive validity with certain populations. They clearly show the importance of weighting. However, the goal of such research is to isolate and measure the variance caused by environmental stressors.

Perkins (1982) pointed out fallacies in life-event research and argued that future research should not try to isolate situational factors but should attempt to incorporate other variables to account for more of the variance. He organized his critique into problems of generalizability, content validity, mediating variables, and construct validity. Generalizing the effect of life-events on stress levels is difficult with test-retest reliability coefficients ranging from .26 to .90, with the higher correlations corresponding to shorter intervals. One might logically assume that self-reported stress from a life-event may itself vary over time, which raises the question as to what point in time one might assume an accurate assessment. Also, Perkins questions the threat to external validity as reported in Caplan (1975) that innocuous events tend to be over-reported, while socially desirable events tend to be

under-reported. Content validity is low in Life-event Scale due to lists which are not relevant to specific target populations, due to sampling error, ambiguity in wording, and possible confounding of events. Continuing, Perkins (1982) has viewed several assumptions of the change theory underlying situation oriented research as a threat to construct validity. One such assumption is that a linear relationship between stress and disorder exists. What about non-events or hopes and aspirations which do not materialize? Second, the change construct assumes events are independent and additive. Horowitz, Schaefer, and Cooney (1974) showed that stress increased with the repetition of some events (e.g. marital separation) and decreased with others (e.g. threats to self-esteem). Are other events perhaps multiplicative? Third, Perkins claims the accepted fact that some amount of stress can be growth promoting and positive (Chiriboga & Dean, 1978; Finkel, 1975; Haan, 1982) has no theoretical place in typical situation oriented research. Fourth, a threshold of stress may exist, beyond which the effect of stressful events is not additive.

And last, as a threat to construct validity, Perkins discussed nonquantitative problems which plague the change construct in the form of mediating factors. Typically in research which focuses on life changes, events are seen as "nonspecific stimuli," meaning that they affect different people in different environments in a similar way. This view negates other factors such as a person's cognitive appraisal of a situation or the support he or she gets from within his/her social structure. An alternative viewpoint, which Perkins advocates, involves the "undesirability Construct." Within that framework events are seen as specific elicitors of psychological and emotional responses and thus

include many more facts than just the quantity of change. These characteristics of events, such as the degree of undesirability (Paykel, 1979), amount of threat (Brown et al., 1973) or amount of anticipation or control (Dohrenwend, 1977), interact with characteristics of the individual or the situation.

Perkins believes that future research must be directed towards qualifying, rather than quantifying, aspects of life stress by concentrating upon the mediating factors which vary explicitly with individual, situational and life event correlates (pp. 323-324, 326).

The Interactional Orientation

Criticisms of traditional research practices which artificially separate the person from his or her situation are not new. Endler and Edwards (1982) cited Aristotle as the first to argue for the concept of interactionism. Early twentieth century advocates of interaction include Kantor (1924), Koffka (1935), Lwein (1935), Murray (1938), and Rotter (1954). Even though many argued for an interactional position, few empirical studies existed before the late 1950's and the concept did not gain prominence until the 1960's (see Lazarus & Launier, 1978; Magnusson & Endler, 1977; and Mischel, 1973 for a review). Today, most critics of the traditional approach advocate the importance of interactional analysis for interpreting and predicting human behaviour. (see Cronbach & Snow, 1981; McCann & Short, 1982).

For example, research on coping that emphasizes the role of the situation tends to have ignored the importance of personological variables and has led to research hypotheses concerned only with the general effect of environmental stressors, such as illness, accident

trauma or catastrophe. Person-oriented researchers have ignored variation in environmental stressors while seeking stable personality correlates of coping capability.

The interactional approach, on the other hand, is an endeavor in psychology to look at human performance in terms of the variance-accounting capacities of the interactions of situational and person variables. As such it is a research orientation rather than a research area. It is hoped that interactional research will facilitate the development of an adequate theory of adaptation by gradually fabricating a matrix of person and situation characteristics in relation to human performance.

According to Endler and Edwards (1982) there are four basic postulates to interactional psychology:

> (1) behavior is a function of a continuous and bidirectional process of person-situation interaction.
>
> (2) the individual is an intentional, active agent in this process.
>
> (3) motivational, emotional, and cognitive variables play important determining roles on the person side.
>
> (4) the psychological meaning that the situation has for the person is an essential determining factor of behavior. (p. 37)

These four postulates, which were first suggested by Endler and Magnusson in 1967, remain as the foundation upon which to build studies in interaction. To understand the first part of this definition, it is important to distinguish between artificial or mechanistic and dynamic or process interaction.

Mechanistic interaction involves the joint variance of two or more independent variables upon the dependent variable.

The tool invariably used to measure the influence is a statistical analysis of variance (ANOVA). Dynamic interaction is a theoretical interaction which involves a process, a bidirectional interplay between the independent and dependent variables. As yet, no statistical tool has been developed to measure a dynamic interaction with the accuracy that ANOVA has in measuring unidirectional interaction. The limitations in analysis have restricted the design in studies based upon a process interaction. Recently, however, some models have been proposed using process oriented interaction: studies on anxiety (Endler & Edwards, 1982), on stress (Magnusson, 1982), on coping and stress (Cameron & Meichenbaum, 1982), and on coding and encoding (Mischel, 1977). The complexity of these models makes empirical validation of the theories difficult, but they represent a new direction in adaptation research.

The purpose here is not to present the statistical arguments in analyzing interaction but to suggest that there is a difference between a theoretical and statistical interaction. Acceptance of this distinction is essential to understanding the construction and analyzation of the present study. Methodological assumptions and problems in studies of interaction are reviewed in Chapter 4.

The second and third postulate advocated by Endler and Edwards includes personological variables in the interaction orientation; the fourth postulate incorporates situational variables. The variables are the same as those studied (and reviewed earlier) with a person or situation orientation. However, in the interactive approach, these variables become mediating variables, the effect of these variables is seen as they mediate the interaction. All four postulates have been

utilized in the construction of the current study. Theoretically, personological and situational variables are seen to interact and produce an effect (stress) which in turn influences the individual's adaptive behaviour. A review of the conclusions from studies on personological and situational variables in stress and adaptive research is important to substantiate the hypotheses of the current study.

Mediating Factors

One way to advance complex interactive studies of adaptation is to concentrate upon the mediating factors as Perkins (1982) suggested. This way has merit in that the factors can be studied in great detail and later incorporated into more complex theories which can account for actual behaviour. While this author believes that too many studies have isolated factors without attempting to amalgamate the parts, such studies have yielded substantial information on the mediating variables.

Moos and Billings (1982) have selected four domains of variables which "mediate the perception of stressful events and the selection of specific coping responses" (p. 215). The four domains have been derived from four lines of theory and research that have contributed to current concepts of adaptation: ego development, self-efficacy and social competence, cognitive styles, and problem-solving abilities. The authors have implied interaction by noting the "perception" of stressful events, that perception being dependent upon both the situation and personological attributes which colour it. However, Moos and Billings' classification system has only detailed

the personological variables. The situational variables which also mediate one's appraisal of an event must be considered for a complete interaction. In other words, one must also consider the personality of the situation as Bem and Allen (1974) and Bem and Funder (1978) have suggested.

Important Personological Variables

The variables studied with a person orientation need to be reconsidered with an interaction orientation. Rutter (1981) has listed several important personal characteristics and qualities which an individual brings to the stress interaction: age, sex, temperament, intelligence, chronic psychosocial adversity, vulnerability and protective factors, social networks and close personal relationships, and the social group and social context. Not all of these characteristics have been researched in studies involving children.

In reviewing the literature on children and coping with stress, Rutter (1981) remarked on the "great paucity of evidence on the possible importance of stressful life events in the genesis of psychiatric disorders in childhood" (p. 325). Fewer studies exist which investigate normal development of adaptive and/or stress responses. Most have been conducted with infants or adolescents and focus on specific maladaptive responses, such as autism (Tinbergen, 1977) or illicit drug use (Underwood, 1975), or on responses in specific situations, such as in hospital (Quinton & Rutter, 1976) or adjusting to college (Coelho et al., 1963).

However, some trends have emerged from studies with children identifying important personological variables. The most researched of these variables are reviewed below.

The findings from a study done by Brown and Harris (1978) illustrate the importance of considering person-oriented interaction when studying the mediating effects of personological variables, rather than the isolated effects in a person orientation. Brown and Harris studied depression in women. They attempted to discern the effects of three variables on vulnerability to depression; one of those was the presence of three or more children less than fourteen years old. They further separated subjects into those with and without a stressor, the indicator of interaction. Results showed that women without a stressor were less vulnerable if they had children (0% compared to 2% without children). However, women with a stressor were more vulnerable if they had children (43% compared to 17% without children). Somewhat similar results were reported with the other two variables. Further refinement of "stressor" is needed in such a study to identify environmental mediating factors, but the existence of an interaction is supported.

Age. Consistent with developmental theories in general, theories of adaptation are based on the assumption that children become more adaptive as they age. Cognitive and psychoanalytic theories assume that appraisal of stress and adaptive responses become increasingly complex and subtle. In support, Magnusson (1982) found that pre-adolescents perceived stress in terms of manifest physical characteristics while post-adolescents conceptualized stress in terms of latent psychological consequences such as anticipated shame and guilt. Rutter (1981) found that age had different effects, depending on the situation. The age period of greatest risk with respect to fear and hospital admission was 6 months to 4 years (Pugh, Staub, Sands,

Kirschbaum, & Lenihan, 1953). In the case of birth of a sibling, younger children were more likely to show a distressful response but the differences were not as marked (Dunn, Kendrick, & MacNamee, 1981). Age was not a significant factor in response to parental divorce (Wallerstein & Kelly, 1980). And young children had milder and shorter grief reactions during bereavement, although long term effects might be greater (Rutter, 1966).

In studies with young children Bowlby (1979) and Sroufe (1979) have advanced theories that attachment has a critical age period. In studies with teenagers, Mitchell (1975, 1979) and Laufer (1975) have theorized a relationship between the age of the adolescent and the concerns which he or she experiences. Those concerns are increasingly more abstract, less egocentric, and more psychologically expensive as the adolescent moves from being childlike to adultlike. It would seem that age is a crucial factor in stress and adaptation studies, but the effects of maturation and development vary considerably across situations.

Sex. Given accepted differences between the sexes in achievement motivation, aggression, and socialization (Maccoby & Jacklin, 1974; Wertz, 1977), one would expect studies on stress or adaptation to reflect those differences. Magnusson (1982) concluded that a review of the literature showed that the size and direction of sex differences in reactions to stress were dependent upon the variable studied, the type of data analyzed, the way situations were presented to subjects, and the character of the situation (p. 241-242). He suggested caution in interpreting results from studies which have not taken characteristics of the situation into account, such as those

reviewed by Rutter (1981).

Nevertheless, Rutter (1981) concluded that in studies with pre-pubertal children boys tended to show stronger stress responses. Boys were more adversely affected by hospital admission (Rutter, 1970), were more likely to be withdrawn with the birth of a sibling (Dunn et al., 1981), were more severely disturbed longer in divorce (Hetherington, 1980), and were more likely to show behavioural change in response to daycare and parental discord (Rutter, 1981).

Physiological data with children are scarce, but research has shown that that the sexes differ in their response to stress, with males showing more adverse effects. While females typically have higher adrenal levels of corticord normally and respond more quickly to a stressor, males remain at higher adrenal levels for a longer time (Erskine, Stern & Levine, 1975; Gray, 1971; Hoyenga & Hoyenga, 1979). Females also are able to discriminate among different stress levels (Erskine et al., 1975); and males show a greater excretion of adrenaline and noradrenaline from the adrenal gland when under stress even though similar levels are shown by both sexes when at rest (Johansson, 1972). Berry and Martin (1957) found greater galvanic skin responses (GSR) in females across all experimental conditions, conclusions which are consistent with Kopacz and Smith's (1971) findings that women repond faster and reach their highest GSR levels sooner than men. Liberson and Liberson (1975) demonstrated the difference in type of reponse between sexes: females respond to shock with respiratory rate changes while males show changes in blood pressure. Hoyenga and Hoyenga (1979) conclude:

> The female of most species, including the human, seems more capable of coping with stress, although

> one may react more to it. These differences may be the product of selection pressures operating differentially upon the genders because of their different reproductive roles. (p. 321)

The cause of such differences may be due to differences in activational hormonses as well as sex-role socialization: "Women may believe themselves to be more emotional than men" (p. 322), a belief which may influence their thoughts and behaviours.

Differences are also found between the sexes as to what situational characteristics arouse stress reactions. Because sex differences are more consistent among adults than children and those differences emerge more concretely after puberty (Coleman, 1980; Kagan & Moss, 1962), studies with adults are more likely to yield clear differences. Research shows that the sexes do not differ in mean scores of self-esteem (Maccoby & Jacklin, 1974) or general happiness (Hoyenga & Hoyenga, 1979), but that men and women experience anxiety from different sources. Men seem to experience more stress in situations dealing with physical roles, occupational encounters, or achievement orientation. Women seem to be more concerned with affiliation needs (Hoyenga & Hoyenga, 1979). Several studies with adolescents support that conclusion. Powell (1955) showed that friendship patterns were the same for both sexes, girls expressed more anxiety for longer than boys. Douvan and Adelson (1966) found that friendship to boys meant pursuing and achieving in common activities and skills together; whereas girls placed the emphasis on an interpersonal orientation with intimacy. Coleman (1974) concluded that "girls undoubtedly express more anxiety about this sort of relationship [friendship] at all levels," (in Coleman, 1980, p. 94).

Women, as a group, tend to report more anxiety than do men (Ekehammar, 1974). Elizabeth Douvan (1979) has suggested that development of sex-role identity is more difficult for adolescent girls, which may account for more reporting of anxiety. On the other hand, John Couger (1977) has argued that masculine sex-role stereotypes are more rigid, which limits the behaviours open to an adolescent boy and makes his identity development more stressful. Whichever sex has a more difficult challenge in adolescence, the differences in anxiety reports may be due to differences in researcher's biases or differences in honesty in reporting or differences in the situational characteristics of experience.

Temperament and Personality. Studies on temperament have consistently shown extreme individual differences in response patterns. Murphy (1974) found consistency in the reactions to stress events across children of certain temperaments and Dunn et al. (1981) were able to predict reactions to birth of a sibling. However, both noted that different parental responses to different temperaments must be taken into account in studies with children before definite conclusions can be drawn.

Intelligence and Academic Performance. Adaptation and intelligence are generally assumed to be positively correlated. Anderson (1960) found a significant correlation between I.Q. scores and long-term adjustment in adolescent boys. Rutter (1981) has reported that children of above average intelligence have lower rates of psychiatric disorder and sociobehavioural deviance. However, critics of the widespread use of intelligence tests as predictors of success interpret results differently. Bane and Jencks (1976) have claimed that I.Q. test are

"not very good at measuring the skills required to succeed in most kinds of adult work" (p. 327) or in "most adult roles" (p. 326). McClelland (1976) has demonstrated that more careful interpretations are needed. He believes that Jensen's (1972) statement is overgeneralized: because high I.Q. is correlated to better mental health does not mean intelligence tests tap a general ability to adapt successfully to life's problems. Rather I.Q. results are correlated to success in school and academic success is often used as a criterion for adjustment in school-aged children.

Further research is needed to clarify the relationship between adaptation and intelligence. Theoretically, the terms are not synonymous, as was noted in Chapter 2.

Family Ties. Research suggests that having strong family ties and a solid emotional environment in the home aids one's adaptive development. Conger (1977) showed that boys from father-absent homes are more likely to encounter difficulties in school and with their social group. Individual differences may be accounted for by studying the nature of the relationship between father and son, the reason for the absence, and other personological variables. Studies by Hetherington (1972) suggest similar conclusions for girls. Rutter (1971; 1979) also pointed out the importance of having a good relationship with at least one parent. In families without problems the existence of a good relationship made little difference, but in families with discord 75% of those children without a close relationship experienced "conduct disorders" whereas only 25% of children with a close relationship showed problematic behaviour.

Research by Douvan and Adelson (1966) indicates that relationships

with siblings may also facilitate adaptive behaviour. They found that children from large families were more independent and more involved in peer activities than children from small families. Research in this area is limited with school age children but seems to reflect many of the same issues as attachment research with infants.

Social Network. Research has indicated that social environmental factors influence behaviour in childhood. Rutter, Maughan, Mortimore, Ouston, and Smith (1979) found markedly varying rates of absenteeism and disruptive behaviour between different secondary schools in North America. They concluded that "schools can act as a force for the good (or bad) even with children living under conditions of psychological disadvantage" (Rutter, 1981, p. 343). Similarly, Reynolds (1976) studied nine secondary schools in South Wales, all of which were comprised of students from a homogeneous working-class population. His results showed a clear relationship between poor attendance schoolwide, a high delinquency rate, and low academic performance which was stable over time. It would seem that the unique environment of a school can "prevent" or "encourage" participation in delinquent activities. Such correlational research does not yield answers as to why or how schools influence disruptive behaviour in students. However, the relationship is a clear one and needs more investigation.

Since studies have shown that the family and the school both influence the adaptive behaviours of children and adolescents, one would assume that a student's peer group would also have an effect. Coleman (1980), after reviewing the research, has concluded that peers do not have the influence assumed in theories emphasizing the generation

gap. He found that adolescents continued to be influenced by parents on major issues such as values, ideals, and mores, and that they were swayed by friends on minor issues such as dress style and curfew times. If Coleman's observations are valid, one might assume that an adolescent's general adaptive type of behaviour is most influenced by his or her parental model but that the style or specific skills within that type is coloured by his or her peer group. Studies focusing on the relationship between peer popularity, leadership, and adaptive behaviour need to be undertaken.

Important Situational Variables

Discussion of situational variables centers around an individual's appraisal of an environment and has been limited to adult populations. The strength of the interactionist position in the literature can be seen in the consistent use and similar definitions of the word "appraisal" in recent publications (throughout Goldberger & Breznitz, 1982; Taylor, 1983). Magnusson (1982) makes the distinction between "actual" and "perceived" environment to explain the concept. The actual environment is described in terms of objective characteristics. The perceived environment is as it is "interpreted and cognitively represented in the minds of individuals" (p. 231). Most research in the past has concentrated on the actual situation such as death of a spouse, hazards of occupations, urban environments, or laboratory induced stress reactions. These studies advance the understanding of group reactions to stressful events. However, to understand individual reactions, one must concentrate on a person's appraisal.

The majority of the theory on appraisal to date had been conceptualized in dichotomies. The most common concepts noted in the

literature, some of which overlap, include the following situational classification: life or daily event, repeated or isolated, desired or undesired, positive or negative, voluntary or involuntary, within one's control or outside of it, scheduled or unscheduled, anticipated or actual, and involving a threat or loss. Many empirical studies have been conducted which incorporate these dualities but most have not encompassed an interaction orientation. A review of the major findings is important to focus future research.

Life Events Versus Daily Events. Less research has been done on daily events, so the conclusion that life events "cause" or "are correlated" with psychiatric disorder or disease are suspect. Studies usually involve collecting data on recent events retrospectively on psychiatric or medical patients and comparing it to a random group of people. Conclusions are reported that "three-fifths of patients have experienced a 'severe' life event in the weeks prior to the onset of disorder compared with one-fifth of controls" (Brown, and Harris, 1978a, in Rutter, 1981, p. 323). Or 40% of a group of 392 male schizophrenics who had once been in the Navy had lost a parent by death, divorce or separation before fifteen years of age (Wahl, 1954, in Lynch, 1979). Rutter (1981) concluded, even after listing many such statistics, that events preceding psychiatric illness are not major life events but everyday disturbances such as marital disruptions. Are marital disruptions a daily event? However, the fact remains that many life events are not followed by psychiatric disorder and many psychiatric disorders are not preceded by life events. These two groups need to be studied.

Pearlin (1982) has made the distinction between single life events

and repeated or chronic events. This classification could include events such as marital disruptions, child-parent relationships, occupational problems, or even developmental spans of time (ie. adolescence, pregnancy, old age). Certainly Pearlin's dichotomy would suggest that chronic events elicit as much, if not more, stress than life events and would account for Rutter's conclusion.

Desired Versus Undesired. Common sense supports the current research position that undesired events are more stressful. However, earlier research, centered on the positive versus the negative dichotomy, supported Holmes and Rahe's (1967) contention that both were equally stressful. Most recent research such as that by Vinokur and Selzer (1975) has modified that position. Most positive, desired events may be stressful because of other changes in life that are associated with them, but that they do not seem to provoke disorder.

Voluntary Versus Involuntary. Locus of control has frequently been related to perceptions of stress and subsequent behaviour (Dohrenwend, 1977; Haan, 1982; Kuypers, 1972). Seligman's (1975) concept of learned helplessness can be viewed as a defensive or coping reaction to stressful events. According to May (1977), "The special characteristics of anxiety are the feelings of uncertainty and helplessness in the face of danger" (p. 205). Consistently researchers have concluded that events within one's control, especially voluntary events, are less stressful and are related to healthier responses (Rutter, 1981).

Scheduled Versus Unscheduled. The dichotomy of scheduled versus unscheduled can be related to the crisis intervention classification of accidental or developmental crisis. Pearlin and Lieberman (1979)

concluded that there was not notable association between family and career transitions which are expected and the manifesting symptoms of stress; whereas, unscheduled events were frequently associated with stress. This conclusion deserves more consideration in light of research in several developmental, scheduled events such as adolescence (Hamburg, 1974; Petersen & Spiga, 1982).

Anticipated Versus Actual. Studies by Rose (1980) and Ursin et al. (1978) have shown the main endocrine reaction to a stressful event takes place during the anticipation phase rather than the period directly following the event. Heart rate and epinephrine secretion do not follow the same pattern (Rutter, 1981). No studies on the psychological effects of stressful events have taken up this concept but future research is merited. Positive results might suggest why chronic events are more stressful than life events, even though the latter usually includes reorganization over time.

Threat Versus Loss. The loss versus threat dichotomy has been extended by some researchers to include "challenge," considered to be the more healthy interpretation (Aguilera & Messick, 1978; Lazarus & Launier, 1978). The conclusions drawn from many studies on threat and loss are contradictory in judging one to be more stressful than another, although they are both considered important factors. Golan (1978) has noted a different reaction to the two: people viewing an event as a threat tend to be more anxious; whereas, people perceiving a situation as a loss tend to be more depressed.

Other Variables. One problem with research dependent upon classifying dichotomous variables is the inability to clearly place some variables or events into one category or the other.

Magnusson (1982) has reported five groupings of situations, four which have been shown to be anxiety-provoking and one neutral situation:

> (1) innocuous, nonprovocative situations
> (2) achievement demanding situations
> (3) physical threat situations
> (4) threat of punishment situations
> (5) inanimate situations (p. 242)

Future research would benefit from using more comprehensive classification schemes, such as Magnusson's.

CHAPTER FOUR

EVALUATING HEALTHY ADAPTATION

Underlying any study of adaptation is the assumption that a distinction can be made between healthy and unhealthy adaptive behaviours. However, developing a universally accepted definition which is complex enough to account for thoughts, feelings, and actions and which is detailed enough to judge a single thought, feeling, or action is probably impossible. If such a definition were created it is doubtful that the statement would be acceptable over time. Lazarus (1975) reviewed the concept of "health" from Freud through Erikson, Adler, Fromm, Rank, Sullivan, Maslow, Jahoda, Foote and Cottrell, Smith, and White and demonstrated how each writer slanted his or her own definition to encompass that aspect of health relevant to his or her work. He concluded that any definition of health is dependent upon one's values and that discussions of how to encourage health are rather ones of how to best effect the values we have accepted through the creation of certain physical and social environments. Those values differ between culture and over time. Lazarus contrasts Judeo-Christian beliefs and Buddhist ideologies on the acceptance of death. He compares the role of women and their allowable behaviours within our culture today and a century ago. Moreover, from one criterion of illness or pathology, a person may be considered sound, but from another viewpoint he is

maladapted. For example, one is labelled anti-social and regarded as disturbed for chronic anger directed towards his or her friends yet the presence of an ulcer may make him/her "one of the club" and simply be accepted as a psychosomatic illness. Also, being called "sick" in a mental health sense carries a very different connotation than being physically sick in our culture. Such differences in definition further demonstrate, according to Lazarus, that our use of "health" is at present very unscientific.

Towards a Scientific View of Health

Certainly an awareness of the complexity of the concept of adaptation negates the possibility of developing a single definition for evaluating the effectiveness of individual or communal coping. A synthesis of the factors which various authors have outlined as essential to adequate coping includes five criteria. First, a person must have the capacity and skills necessary to obtain adequate information about his/her environment in the present and a recognition of its future consequences (White, 1974). This information includes a recognition of the scarcity of external resources relative to need in children beyond infancy and in adults (Baumrind, 1980). Second, a person must be able to maintain internal conditions or equilbrium which enable him/her to process information and act upon it (Mechanic, 1974; White, 1974). By maintaining an internal balance, one can turn attention to external matters or concentrate on growth and development towards goals higher than mere surviving and coping. Maintenance or enhancement of self-esteem is essential to retaining the inner balance (Goldschmidt, 1974). Third, a

person must be motivated to use the skills and information to meet demands of the environment (Mechanic, 1974). Individuals can cope with stressors in their environment by simply lowering their motivation and ideals. However, such a reaction has adverse effects on the level of self-esteem and on mastery of tasks deemed important by culture or society. Fourth, a person must maintain autonomy or freedom of movement within the environment and a sense of efficacy in the restructuring of surroundings (Baumrind, 1980; White, 1974). Given freedom and a sense of power, one has the luxury of time to choose among copin strategies. Thus, fifth, a person must be able to maintain flexibility in the reciprocal relationship with the environment (Baumrind, 1980; Hamburg et al., 1974). Reciprocity has been emphasized throughout the current study. Flexibility is equally important:

> When the defensive processes available to a particular individual are varied and flexible, the chances are high that they will be adaptive in most situations. But when an individual's defensive structure is rigid and limited, it follows that his defensive reactions will usually not be appropriate to a particular situation and thus will be maladaptive in the sense that they will interfere with adaptive functioning. Such defensive processes are usually labelled symptoms, although we are learning that even where the defenses are not clearly pathological, they can interfere with performance if they are inflexible and inappropriate to the particular task. (Sarason et al., 1960, pp. 31-32).

Adaptive Studies With Children

Evaluating healthy adaptation in children presents added concerns since appropriateness of behaviour is dependent upon age. An action considered adaptive at six years old would probably be considered regressive if displayed at sixteen. In addition to the contributions from studies reviewed in earlier chapters, two themes

have emerged which are important to the study of healthy adaptation in children: play and resiliency.

Research in children's play is linked to adaptation from several philosophical viewpoints. Play can alternatively be viewed as a defense (A. Freud, 1936/1946), as an ego function in social development (Erikson, 1977), as a way of relating to the environment (Garvey, 1977), or as a way of developing personal and interpersonal skills (Caplan & Caplan, 1974). Garvey (1977) has claimed that few activities reveal emerging character and resources for coping with the world more than everyday play. Play Therapy (Axline, 1969; Klein, 1975) offers a chance for researchers and practitioners to study that process. Hopefully, theories of adaptation in play will develop.

The second theme, resiliency, has been directly linked to healthy adaptation. The concept of resiliency focuses on children's ability to perform adaptively in spite of stressful life events or ongoing stress (Antonovsky, 1979; Garmezy, 1977; Murphy & Moriarty, 1976). Murphy and her associates (1974, 1976) worked with infants and young children in a longitudinal study in Kansas. Their purpose was to explore adaptive behaviour in normal and socially deprived children. They concluded that the effectiveness of a particular skill is dependent upon the situation, that definitive taxonomies of coping fail to account for environmental and cultural variables, and that the first two years of life are a critical phase in the development of coping skills and strategies.

Matas, Arend, and Sroufe (1978) emphasized one aspect of the Murphy studies, the relationship between early attachment and the

ability to cope. They were able to predict competence at two years from the quality of early attachment. Silber et al. (1961) were less successful with adolescents. They studied general personality, ego operations which enhanced or maintained self-esteem, and the ability to maintain distressful states within manageable limits in adolescents. However, the mechanisms which they found operating with successful adolescents did not correlate with later competence. One possible explanation for their negative results is that the design of the study failed to incorporate an interactional model. Silber et al. used personality and personological factors to judge healthy adaptation and did not account for situational factors or personal appraisal of stress. It is the contention of the present author that healthy adaptation, both its assessment and prediction, can only be understood within an interactional orientation.

Need for an Integrated Definition

Ideally a definition of healthy adaptation should integrate the psychological, physiological, and behavioural aspects of stress. Such an integration would bring together isolated research and philosophies in psychology, medicine, and education. However, at the present time such a union seems to be premature.

Much research on stress and adaptation has used physiological measures to define and assess stress. Some authors have suggested that psychological stress and physiological arousal are essentially the same (Hennessy & Levine, 1979) and, therefore, that successful coping should be defined in terms of lowered physiological reactions, such as lowered endocrine level (Ursin, Baade, & Levine, 1978).

Because measures of endocrine levels can indicate a clear stress response despite no apparent change in self-report or manifested behaviour (Rose, 1980; Levine, 1981) physiological measures can be seen as more discriminating. However, Rutter (1981) has stated that a neuro-endocrine definition is not appropriate for psychosocial stress research for several reasons. First, it is possible for behaviour or self-report to indicate a stress response without corresponding physiological data. Second, many events which cause arousal do not lead to disorder. Third, physiological measures are poor predictors of psychiatric disorder (Rose, Jenkins, & Hurst, 1978, was cited). And fourth, the absence of a physiological measure of stress may indicate that individual is not sufficiently aroused but not that a/he has successfully coped with a situation, such a person whose defensive action prevents him or her from acting in a way which would be most beneficial to him or her in the long range (p. 336).

Kagan (1975) has also concluded that studies with adrenaline secretion result in equally unclear findings since distress, feelings of pleasure, moderate physical activities, and exposure to cold produce the same physiological responses. He suggested that other measures, such as cardiac output, show different responses for anger and exercise and therefore have more potential to connect with psychological and sociological views of stress.

The low correlations between physiological and psychological measures of stress may suggest that the two are separate concepts linked by intervening variables or may indicate problems in measurement. Certainly more studies are needed which directly compare

physiological and psychological indicators. Wolff and his associates (Wolff, Friedman, Hofer, & Mason, 1964; Wolff, Hofer, & Mason, 1964) studied effectiveness of adaptation in parents of terminally ill children. Effectiveness was measured by a physiological measure of stress (seventeen-hydrocorticosteroid excretion) and a three-part measure of psychological defense taken during an interview: affective criterion, presence of no unpleasant effects; function criterion, little or no impairment of psychophysiological or cognitive functioning in daily life; and reserve criterion, the ability to adequately function during added stress imposed by the researcher in the interview.

Katz et al. (1970) used Wolff's model to study women's responses to impending breast tumour biopsies and proposed that an additional criterion be added in light of the results: "many of the women who successfully employed denial with rationalization impaired their chances for survival by waiting the longest to consult their physicians as a direct consequence of the defense" (p. 142). The fact that such an obvious, at least in post hoc analysis, and important criterion could have been omitted in the initial design only emphasizes the complexity of evaluating effective adaptation.

Need for Judgements

Even though it may be premature to integrate physiological measures of stress into a definition of healthy adaptation, the other aspects must be considered. The adaptive behaviours and the reasoning and feeling behind the behaviours must be judged in light of individual's health and in relationship to social norms.

Haan (1982) claimed that social scientists shy away from making judgements claiming that "psychological knowledge is a human construction and it does not have the same objective reality that physical constructs do" (p. 256). Haan (1977) has argued that we should admit the value basis and then proceed to analyze constructs against a common value. She claimed that concepts of stress, coping, and defending will remain vague until these value judgements of good and bad, effective and less effective, healthy and maladaptive are made.

On an individual basis, one cannot definitively evaluate the adaptive process as healthy unless the characteristics of the person, his/her appraisal of the situation and his/her stress reaction are taken into account. On a group basis the collective adaptative process must also be judged in terms of what is generally considered healthy for the survival and continuation of the species. Evaluation of the individual and the group need not be contradictory. Most clinicians work within the dilemma of dual evaluations. The clinician has a general idea of what constitutes healthy adaptation depending on his/her philosophy, goals, and sense of meaning in life and could judge an isolated act to be generally destructive or healthy. However, when working with an individual client, the clinician is aware of individual circumstances and evaluates an action within his/her general schema. The adaptation literature at present offers few general schemas to evaluate healthy adaptation for the individual or for the group. Monat and Lazarus (1977) summarized the general findings on this topic:

> While the concept of coping is intimately tied to that

> of stress, it has been largely neglected by researchers until rather recently. Today much more interest is being expressed in the classification and measurement of coping processes, and the study of their causes and effects. A highly pertinent issue is the "adaptive" value of varying coping processes--ie., are some processes more effective or ineffective than others? There is a growing conviction that all coping processes, including those traditionally considered undesirable (ie. defense mechanisms), have both positive and negative consequences for an individual, and that any evaluation of coping and adaptation must take into account diverse levels of analysis (physiological, psychological, sociological), the short versus the long-term consequences, and the specific nature of the situation in question. (p. 11)

Hierarchical Arrangement in Adaptation

Menninger: The Vital Balance

The most comprehensive classifications of the adaptive processes to date have psychoanalytic origins. Using Freud's original concepts, Menninger (1963) sought to explain normal behaviour in The Vital Balance. Although his language is couched in psychoanalytic terminology, he presented a humanistic explanation of man's struggle to maintain a homeostatic sense of self, within his heterostatic growth and development towards achievement, pride, creativity, and loyalty to principle. Menninger introduced the concept of coping devices used by a relatively healthy and intact ego which had an established system of relationships with love objects, a network of communication, and a program of life with work and play. He listed several devices of everyday living which are used under conditions of minor stress or which arise from curiosity and ingenuity:

(1) reassurances of touch, rhythm, sound, speech
(2) food and food substitutes (smoking, chewing gum)

(3) alcoholic beverages and other self medications
(4) self-discipline
(5) laughing, crying, and cursing
(6) boasting
(7) sleep
(8) talking out
(9) thinking through, including rationalization
(10) working off (physical exercise)
(11) acting to alter
(12) pointless overactivity (finger activity)
(13) fantasy formation and daydreaming
(14) dreaming
(15) parapraxis
(16) symbolism (shopping, games, religion)
(17) reaction formation
(18) counterphobic mechanism
(19) physical and physiological processes (sneezing, itching increased sexual activity (p. 146)

Menninger's list of devices are clearly adaptive when they help an individual maintain a sense of self and self-esteem (defend), lower anxiety or tension (stress), give the individual a choice of behaviours with which to get by (cope) but do not seriously impede his or her growth (adaptation). Menninger clearly differentiates between the coping devices used by normal, healthy people and five orders of increasing dysfunction:

(1) nervousness
(2) "neurotic" syndromes and personalities
(3) naked agression
(4) "psychosis"
(5) beyond "psychosis" (p. 153-250)

Vaillant: Adaptation to Life

Also grounded in Freudian concepts, Vaillant (1971; 1972; 1974; 1976; 1977) divided behaviour into four hierarchical categories based upon the unconscious drive of defense mechanisms. Since defense mechanisms cannot be observed or measured directly Vaillant assumed the existence of a defense mechanism when repeated observations revealed consistent behaviour patterns congruent with the defense. He used the terms "adaptation" and "defense"

synonymously to "underscore the fact that defenses are healthy more often than they are pathological" (1977, p. 7) and encouraged readers to substitute their own taxonomies if the metaphors of psychoanalytic defense were not serviceable. While Vaillant classified eighteen mechanisms of defense in his four levels, he acknowledged that any selection was arbitrary and idiosyncratic since "there are as many defenses as the cataloguer has the termerity to imagine" (p. 79).

Freud created the concept of defense mechanisms; however he expanded his concept of repression so "as to encompass and to obscure for twenty years the entire concept of differentiated ego mechanisms" (Vaillant, 1977, p. 108). Anna Freud (1936/1946) published the first comprehensive theory of defense in her monograph The Ego and the Mechanisms of Defense. She claimed that both normal and neurotic people used methods of defense but that the style, type, and frequency of use varied in pathological definition. A distinction was also made between ego defense and character traits, the latter having a greater role in the overall functioning of the person and in non-conflict situations. Paralleling Anna Freud's beliefs, Vaillant's distinction between health and illness is consistent with themes noted earlier in this chapter:

> When is a given adaptive mechanism coping and when is it pathological? It is not the defenses themselves that are pathological but the conflicts and disordered events that call them forth. In evaluating the significance of a given defense, both context and flexibility become exceedingly important. If a defense is used in a rigid, inflexible way, if it is motivated more by past needs than by present and future reality; if it abolishes rather than limits gratification, or if it dams rather than rechannels the expression of feelings, then it is likely to be maladaptive. The context is also important. (1977, p. 85)

Having defined "health," the defenses can be arranged along a continuum. It should be noted, however, that Vaillant limits his ordering to unconscious mechanisms which are habitual ways of coping Conscious coping devices which are used intermittently, such as those listed by Menninger, constitute a separate category.

Level IV: Mature Mechanisms. These mechanisms are common in healthy individuals from adolescence to old age and include sublimation, altruism, humour, and suppression. These cannot be acquired by a conscious act of will, such as "trying" to be altruistic. There is usually no therapeutic reason to interfere or attempt to change these mechanisms (p. 84-85; 91-126).

Level III: Neurotic Mechanisms. Under cases of extreme stress, people normally employing mature mechanisms may revert to neurotic mechanisms, which include intellectualization, dissociation, repression, reaction-formation, and displacement. Intellectualization includes isolation, obsessive behaviour, undoing, and rationalization. The neurotic mechanisms are common in individuals of all ages. They underlie the symptomatology of neuroses and frequently can be changed by brief therapeutic intervention which is often sought by the user. While they appear to others as neurotic hang-ups, they reduce anxiety in the individual by altering feelings in times of intrapsychic conflict (p. 84; 127-157).

Level II: Immature Mechanisms. These mechanisms are frequently used in times of deep interpersonal conflict. Including projection, fantasy, passive-aggressive behaviour, hypochondriasis, and acting out, the immature mechanisms are common in children and adolescents. They are also typical of adults with depressive illnesses,

addiction, and "character disorder." Fantasy may take the form of schizoid withdrawal or denial through fantasy. Passive-aggressive behaviour reveals masochism and turning against the self. Acting-out involves compulsive delinquency or perversion.

People using immature mechanisms of defense are usually unaware that they have a problem and rarely seek help, even though their actions are labelled socially unacceptable or "profoundly inconvenient" (p. 83-84; 158-192).

Level I: Psychotic Mechanisms. The most primitive defenses are delusional projection, psychotic denial, and distortion. These can be found frequently in children under five years of age and in adults during dreams and fantasy life. All of the mechanisms in this category involve rearranging external reality to the extent that a person appears crazy (p. 81-83).

Vaillant used his classification scheme in a thirty year longitudinal study of adaptation in young college men chosen for psychological and physical health: the Grant study. The men were classified as to the defense mechanisms they habitually used at various points in time, and then their general, career, social, psychological, and medical adjustments were rated. The adjustment of the twenty-five men found to use mature mechanisms was significantly better than the adjustment of the thirty-one men found to use immature mechanisms when all the evaluations were made by blind raters. The detailed results of the study support Vaillant's contention that the "hierarchy reflects not only a continuum from child to adult but also from sickness to health" (p. 88).

Vaillant's hierarchy represents a complex scale to judge

healthy adaptation. Replication studies are needed to validate the theory and measurement involved, especially with children. All information used to support Vaillant's developmental conclusions was gathered from college age (or older) men. Women, children, adolescents, and people with various educational backgrounds, socioeconomic statuses, and cultural origins, need to be studied. To be acceptable in an interdisciplinary approach to adaptation, the words in the study need to be released from their psychoanalytic origins. Also, while Vaillant stated that the context in which a defense was employed is important and influences the labelling of the action, a more objective way of incorporating situational components into the design is needed. And finally, the role of stress--the interactional component--needs to be clarified.

Conclusion

Future adaptation research should be enriched by the current trend towards merging child development, personality, learning, and socialization theories from psychoanalytic, ecological, and medical perspectives. Reviewing the research focuses the direction of future studies towards four themes. One, an eclectic philosophical and theoretical approach is advantageous to studying variables involved in effective adaptation. Two, the variables under study include person variables, situation variables, and the interaction between them. Three, effective adaptation must be considered in view of the whole person, physically and psychologically, and the environment. And four, the process of adaptation involves cognitive and psychological processes of coping, mastery, and defense as well as behavioural skills.

CHAPTER FIVE

METHODOLOGICAL PROBLEMS IN ADAPTATION RESEARCH

Problems in methodology in adaptation research center around three crucial areas: assessment, research design, and data analysis. These concerns have been alluded to in other chapters of the present study when they have related to specific studies or issues being reviewed. Clarification and consolidation of the problems will facilitate the explanation of the empirical study described in the last three chapters.

Assessment

Measures of Adaptive Behaviour

Moos (1974) cited five reasons for assessing adaptive behaviours and the coping process, all of which have clinical implications. The primary reason for assessment is to attempt to understand more fully the way an individual deals with everyday events and dramatic life crises. A major challenge in evaluation is to preserve the complexity and richness of individual responses and yet to reduce the complexity of the data so that it can be analyzed and conclusions can be drawn. A second reason for assessment is for the prediction of future behaviour. While it might be logical to assume that understanding must precede prediction, "the past history of assessment attests to the conclusion that investigators' feelings of understanding are neither a necessary nor a sufficient condition for accurate prediction" (p. 335).

A third reason for measurement and evaluation has to do with the prevention of maladaptation, which leads to the fourth reason, effecting changes in coping processes. Clinicians strive to decrease maladaptive responses and, more recently, according to Moos, to increase adaptive behaviours. And fifth, assessment of coping can provide data about the general maladaptive environments within institutions and suggest changes in the situation, rather than within the person.

Depending upon the purpose of the assessment, different techniques would be appropriate. In 1977, Moos wrote very optimistically about new techniques:

> The extensive proliferation of new assessment techniques gives the unmistaken impression of a rapidly expanding area of inquiry that is currently still in its developmental infancy. The exponential growth of the area over the last several years... [shows] exploration, curiosity, novelty....One of the healthiest aspects is... good articulation between new theoretical developments and the creation of new assessment methods. (p. 335)

By 1982, Moos and Billings were more brusque: "Although several attempts have been made to classify appraisal and coping responses, no accepted method has emerged" (p. 218). Haan (1982) was equally gloomy when she reviewed the most commonly used inventories from a conceptual viewpoint.

Parts of many standard and accepted inventories measure constructs related to the adaptive process. Three scales of the Minnesota Multiphasic Personality Inventory (MMPI), the lie, K, and social desirability scales, were shown to correlate with defensive denial scores (Haan, 1977). Other MMPI scales have the potential to be used with adaptive assessment.

Several scales on the California Psychological Inventory (CPI) seem to measure coping processes: tolerance, good impression, achievement conformance, achievement independence, intellectual efficiency, psychological mindedness, and flexibility (Haan, 1982). Research with the Locus of Control scale indicates that the internals tend to choose more adaptive "coping processes," whereas externals tend to employ less adaptive "defensive processes" (Kuypers, 1972).

Shanan (1973) developed a definition of coping which was measured with a sentence completion test and the Thematic Apperception Test (TAT). The TAT was also used successfully to measure the coping potential of late adolescents (Coelho, Silber, & Hamburg, 1962) and to predict college dropouts (Field, Maldonado-Sierra, & Coelho, 1963). Holland's Vocational Preference Inventory (VPI) can be viewed as a performance test of understanding of personal environment (Moos, 1974). Shostrom's (1963) Personal Orientation Inventory (POI) measures self-actualization and thus can be seen as a measure of healthy adaptation. Finally, studies on cognitive styles of coping have used the Embedded Figures Test in order to measure field dependence and independence (Witkin, Moore, Goodenough and Cox, 1977).

All of the inventories noted above are good psychometrically and at least tangentially relate to adaptation. However, they were not constructed to measure healthy adaptation or to evaluate the coping process. Studies using the MMPI, CPI, Locus of Control, TAT, POI, VPI, or the Embedded Figures Test will never yield conclusions with strong theoretical constructs. Researchers may be able to predict adaptive or maladaptive behaviours from such

studies but the results will not add to the understanding of the processes involved. Moos (1974) explained:

> The goals of understanding and of prediction often lead to the choice of quite different assessment methods. Investigators interested primarily in understanding have tended to utilize more complex, intuitive, clinical and global assessment methods; investigators interested primarily in accurate prediction have tended to utilize simple, objective, specific, and actuarial methods. (p. 335-336)

Many other inventories have been constructed specifically to measure adaptation but have not yet been shown to be reliable and valid. Few have generated much research beyond that of the original authors, probably because most were created for use in specific settings and therefore have limited generalizability. Lindemann and Ross (1955) studied social adaptation by observing and rating children in a doll play situation. Smith (1966) developed Q-sort items to quantify complex interview and observational data with Peace Corps teachers in Ghana. Magnusson, Dumer, and Zetterbloom (1975) constructed a series of rating scales of adaptation to be used by teachers, parents, and peers in a longitudinal study in Sweden.

Four scales measuring defensive processes have been created. Glaser and Ihilevich (1969) developed the Defense Mechanism Inventory (DMI), and Schutz (1978) constructed the Coping Operations Preference Enquiry (COPE). These two scales are very similar in their organization of a series of short scenarios. Individuals are asked what they would do in the story and their forced choice answers reveal a preference for using one of five defense mechanisms. The DMI involves projection, intellectualization, reversal, turning

against self, whereas the COPE includes denial, isolation, projection, regression, and turning against self. A third classifictory system for defenses was popular in perception research and yields ratings on a dichotomy of repression-sensitization (Lazarus, et al., 1974). And Haan (1965; 1977) developed a tripartite model of assessment involving coping, defending, and fragmenting. All four of the inventories classify a very limited number of defenses and therefore cannot account for a broad range of human behaviour. Such limited assessments yield little information to aid in the understanding of the complex processes of adaptation.

The understanding of adaptation can be enriched with novel approaches in assessment which capture the full range of human experience. One study (Pisano, 1966) used films to model rationalization by a clean-cut soldier (GI Joe) to a group of school children. The results supported the prediction that the model would serve to elicit increased defensiveness in many forms as well as shape imitative behaviours of rationalization. Moos (1974) concluded that increased use of films, audiotapes, interviews, essay and sentence completions, and Q-sort techniques will add another dimension to simple classificatory systems. To see the whole picture, researchers must include objecitive ratings, subjective interpretations, and self-report in their assessment of the adaptive process.

Measures of Stress

A researcher has three choices of method in assessing stress within an individual: (1) he can assume the stress level by

interpreting manifest behaviour or its absence, (2) she can use physiological measures, or (3) he can rely upon self-report measures of stress. The first method has obvious limitations although it is frequently used in research and in clinical practice. Interpretation of physiological measures is difficult since arousal can mean different things to different people or to the same person at different times, as was discussed in Chapter 4. Therefore, it would seem that, at present, self-report measures are the best method for assessing stress in the individual.

The major liability of self-report measures has to do with their reliability and validity: can and will an individual accurately report his/her feelings, thoughts, and behaviours? Derogatis (1982) reviewed the literature on the accuracy of self-report measures and concluded that "a number of critical investigations have tended to to minimize the impact of response biases in clinical assessment, with the exception of social desirability" (p. 271). Even social desirability seems to function in a "selective and complex manner," and a number of researchers have doubted that it is "a unitary measurement construct," (p. 271). Certainly defense mechanisms like rationalization and denial could distort self-reports, continued Derogatis, but those mechanisms operate in other measurement modalities as well.

Nunnally (1972) emphasized the importance of good practices of test construction for self-report inventories. Low reliability is often due to the relatively small number of items; both reliability and validity can be affected by language difficulties, such as lack of clarity in word-choice. Also, because establishing construct validity is so complex and time-consuming, most self-report

inventories have relied upon less rigourous face validity. Nunnally stated that a potential problem in the use of self-report measures is related to the drive within individuals to appear socially acceptable. However, the acceptability influence is less strong when the inventory is completed anonymously in private, when assurances are given as to its confidentiality, when the results are not used for selection, and when there is no punishment such as embarassment for appearing less socially acceptable. Even though respondents are usually able to answer dishonestly or fake results, there is little evidence that they do so. Each respondent may present himself/herself in a slightly better light but the variance in scores represents a valid range of individual differences of the researched trait. Nunnally concluded that despite the problems mentioned with self-descriptive inventories, they "represent by far the best means available for the measurement of personality characteristics," (p. 480) especially numerous measures of the trait of anxiety.

Recent research in sex differences suggests that males and females may differ in their accuracy of reporting. Hoyenga and Hoyenga (1979) concluded after reviewing the literature that females more frequently report anxiety in more circumstances than do males, except in achievement situations, and that females tend to score higher on depression and neuroticism scales. Results are mixed on psychotic behaviour scales. However, the cause and effect is unclear: "women may score higher on these scales because they tend to focus more on the unpleasant aspects of their life than men" (p. 340). Social desirability factors may also have differing effects on the

sexes, although research on this has yielded mixed conclusions.

Published inventories of self-report measures of stress fall into three categories: response oriented measures, stimulus oriented measures, and interaction oriented measures. Measures which emphasize the person's role in stress, the response oriented measures, included hundreds of unidimensional and multi-faceted personality inventories. Examples which have been used frequently in the literature include the MMPI; Derogatis' (1975) SCL-90-R, a psychological distress scale; the Beck Depression Inventory, the BDI (Beck & Beamesderfer, 1974); the State-Trait Anxiety Inventory, the STAI (Spielberger, Gorsuch, & Lushene, 1970), and Zung's (1965; 1971) Self-rating Depression Scale and Self-rating Anxiety Scale, the SDS and the SAS.

Measures which emphasize the situation, the stimulus oriented measures, are all modelled after Holmes and Rahe's (1967) Social Readjustment Rating Scale. The scale has gone through many revisions and name changes, and other authors have published slightly different versions (Dohrenwend et al., 1982; Perkins, 1982). All the life event scales rely on the method of surveying a group of people's reactions to a stressful event and arriving at a composite stress score, based upon the assumption that people experience similar responses to similar situations.

Researchers believing that stress reactions are due to the interaction between person and situation are critical of both stimulus and response oriented measures. The interactional position is newer than the other orientations and therefore has not generated the variety of measures of stress found in either of the other

positions (Derogatis, 1982). The only instrument which has been widely used is the Jenkins Activity Survey (JAS), a measure of specific behaviour patterns (Type A behaviour) found to have a strong correlation to coronary disease (Jenkins, Rosenman, & Friedman, 1967). The JAS is complicated and cumbersome psychometrically but has high convergent validity with structured interviews organized to measure the same construct. The fifty-two items seem to tap personality factors, behavioural mediators, and situational perception and appraisal. Although limited to a specific area of stress research, the JAS is a valuable model for research in the interactional position.

Derogatis (1982) reviewed three other instruments which are in the preliminary stages of refinement: the Derogatis Stress Profile and two Dutch instruments, the Rating of Statements List and the Maastricht Questionnaire. Obviously, additional measures need to be developed which support or are consistent with the theoretical assumption that a stress response results from an interaction between person and situation.

Research Design

Interaction Between Person and Situation

Spielberger (1977) has argued that his measure of anxiety, the STAI which was classified as a person oriented measure in the current study, can be used to support an interactionist position depending on the design of the study and the interpretation of the results. Fundamental to his position is the belief that a personality trait can be defined on the basis of individual differences in the

disposition to react with particular types of behaviours to specific categories or classes of situations. People will show consistency (and therefore be said to have a trait) in situations which they appraise as similar, given enough time for a similar situation to occur. Clearly Spielberger is in league with Block (1977) and Epstein (1977; 1979) in arguing that studies on personality traits need to be reorganized and reevaluated rather than abandoned. The specifics of their arguments and their interpretation of data are debatable and highly controversial among other interactionists, most notably Mischel (1968; 1973; 1977; 1979).

However, Spielberger, Block, Epstein, Mischel and many other authors (see Magnusson & Endler, 1977) agree that behaviour can satisfactorily be explained by studying the person, the situation, and the interaction between them. Just <u>how</u> that interaction should be researched and how studies should be designed was the focus of the symposium that generated the Magnusson and Endler anthology, the major work in the field of interactional psychology. More critiquing of past methods and designs was accomplished than proposing of new methods, although the theoretical assumptions were advanced.

Within the field of adaptation research Magnusson's (1982) research provides an introductory interactionist model for studying the relationship between stress and adaptation. Working with adolescents in five separate studies, Magnusson and his colleagues (reviewed in Magnusson, 1982) sought to support the contention that the individual stress reaction, determined by the functional interplay of personal characteristics and situational characteristics, is the

basis upon which an individual organizes his/her perceptions and actions. He emphasized that his studies were not intended "to show final, decisive results for the form of person-situation interaction in the field of stress and anxiety; however, they are suggestive and indicate fruitful directions for further research on stress and anxiety" (p. 248). His exploratory studies examine age, sex, and cultural differences in perceptions, activating conditions, reactions, and expected consequences of stressful situations. Magnusson's data suggest that the theoretical positions posed by Golding (1977), Mischel (1977), Pervin (1977), and Sarason (1977) can indeed be supported by empirical data, and the results substantiate Fiske's (1977) belief that the study of interactions must begin with moment by moment interactions and gradually proceed to more complex levels of abstraction which may account for the adaptive value of standard behaviours observed in each culture.

Other Issues in Design

Besides the paradigmatic shift in stress research towards interactional designs, two other shifts have been suggested in the research. Several authors suggest process instead of trait research and field instead of laboratory research.

In order to understand the complex process of adaptation, researchers must undertake studies which utilize the many aspects of effective coping and defending as criteria for competence and mastery, aspects which were developed in Chapters 2, 3, and 4 of the present study. By necessity empirical researchers must isolate individual aspects for study. However, if research is conducted in natural settings with the purpose of clarifying the impact of

variables in a single aspect of competence, the pieces can be fitted together. Research which ignores the complexity and range of variables both within the person and in the environment cannot be generalized to aid in understanding of real life adaptation. Most predictive studies of future adaptation fall into this category. (Moos, 1974). Experiments which involve the manipulation of independent variables in the laboratory setting distort the responses and the behaviour of the subjects and do not require the organization imperative in life (Baumrind, 1980). Raush (1977) suggested that the distinction between independent and dependent variables can be dispensed with in interactional designs.

Interview techniques elicit more complex responses and can demonstrate internal organization but are unreliable if used in retrospective studies due to the very nature of adaptation (Mechanic, 1974). Coping requires the reframing of past encounters in order to maintain self-esteem and equilibrium and to strive ahead towards ideals. Mechanic (1974) urged more emphasis on field studies over time and cross-sectional studies which link specific adaptive strategies and coping devices to effective behaviour in a variety of life tasks (p. 45). Mischel (1974) cautioned that studies must be designed in such a way that the complexity of the processes of adaptation are allowed to interact. When studies involve crisis, real-life events, the situational factors tend to overshadow the individual differences of the personal characteristics. Therefore, research should concentrate on daily events in field research.

While they agreed that more field research is needed, Laux and Vossel (1982) cautioned against abandonment of laboratory

research:

> The most desirable features of any empirical study--realism, precision, and generality--cannot be maximized at the same time. And each available strategy--laboratory experiment, field experiment, and field study--can serve only some aims of research well. Therefore, one should not search for the single right strategy but choose that strategy that is best for one's own purposes and try to maximize its inherent weaknesses. (p. 204)

They suggested that field and laboratory research can be combined. First, an investigator examines a set of concepts and hypotheses as to their completeness and adequacy in field research. Next, in a laboratory setting the researcher can manipulate experimental conditions to test the hypotheses and reformulate them if necessary. Then the investigator could return to a field setting to reaffirm the conclusions. It is the belief of the present author that Laux and Vossel's suggestions are more realistic and helpful in advancing the study of adaptation than the extreme criticism and appeal for radical changes in language, outlook, and design of Lazarus and Launier (1978).

Data Analysis

When authors discuss how to analyze data from studies employing a person-situation interaction design, agreement is as rare as it was in design issues. Olweus (1977) argued that the disagreements in analysis are caused by the many meanings given to the word "interaction" by the theorists. He found four very different uses of the word:

(1) interaction in the general sense of combining independent variables
(2) interaction as in designated interdependency between variables

(3) interaction which is dynamic, a transaction, and equivalent to reciprocal action
(4) interaction in the analysis of variance sense (p. 225-231)

Authors such as Ekehammar (1974) heralded the use of analysis of variance (ANOVA) as the tool to support interactionism. Interaction from Ekehammar's point of view (4) means that the person-situation interaction accounts for more of the variance in the behaviour than either the personological or situational variables alone. Such an interaction could be described in the following formula:

$$B = a + b_1X_1 + b_2X_2 + b_3X_1 \cdot X_2$$

Where B = behaviour
a and b are constants
X_1 = person variables
X_2 = situation variables
X_3 = the interaction between person and situation

Olweus argued that most theorists, such as Endler and Edwards (1982), believe the central question in interactionism is how do individual differences and situations interact to evoke behaviour? If the question of how is most important, then adopting the last definition (4) artificially limits research to those studies whose data show an interaction in the ANOVA sense and rejects studies which show general interaction in the linear sense (1). The first definition is formulated as follows:

$$B = a + b_1X_1 + b_2X_2$$

Results which could be explained in this more simple equation would still answer the how question.

The second and third definitions of interaction cannot be statistically supported. The interdependency definition (2) emphasizes the inseparability of person and situation. The situation is viewed as a function of the person's cognitive

perception and appraisal and cannot be separated from that person. Theoretically, formulating behaviour into its components, such as in (1) or (4), would be considered artificial. Behaviour could only be described as follows:

$$B = f(X_1 X_2)$$

where f = function

The reciprocal, dynamic definition of interaction (3) is based on a theory of bidirectional interplay between person and situation variables over time. Olweus states that ANOVA might be helpful but that a combination of techniques would probably be more useful. Alker (1977) argued that ANOVA designs "may impoverish instead of enrich" (p. 249) interaction of this type (3) because time is not taken into account. Characteristics of the person or the behaviour are frozen. The reciprocal interactionist sees the person by situation interaction as a process. Because of past events, a person interprets a situation a certain way and acts accordingly, meanwhile making assumptions of what the future reaction to that event will be. In macroscopic studies "it is vitually impossible for practical and ethical reasons to unconfound the variance from persons, situations, and their interaction" (p. 250), a belief which incorporates the interdependency definition of interaction (2).

Nisbett (1977) condemned ANOVA designs more vehemently while he supported the theoretical constructs of interaction in personality research he felt that the use of ANOVA techniques to ascertain the interaction is overused. He claimed that results of complicated designs, such as a 2 x 3 x 2 x 4, are vitually uninterpretable, that conclusions are difficult to disconfirm and are falsely precise,

and that most interactional hypotheses were pulled together post hoc when main effects hypotheses failed. Nisbett's criticism seems overstated when researchers have developed valid theoretical constructs which can be analyzed with ANOVA. Caution in the use of ANOVA to substantiate an interaction seems more appropriate then condemnation if the understanding of interaction of the ANOVA type (4) and possibly the reciprocal type (3) is to advance.

Olweus (1977) questioned the reliance on ANOVA as the only method to analyze data based on an interactionist theory. He concluded that any emphasis on ANOVA is misplaced because "estimates of the relative contributions to total variance from person, situations, and their interaction will vary markedly depending on the persons sampled and the situations selected" (p. 230). If the relative variance contribution will remain indefinite across studies, then the question of whether personal variables, situational variables, or the interaction between them is the most important factor in determining behaviour is unanswerable. Researchers had best stay with the question of how the variables interact and use a combination of statistical tools to analyze their data.

CHAPTER SIX

METHODOLOGY IN THE EMPIRICAL STUDY

The primary purpose of the current study is to attempt to understand more fully the adaptive processes children and adolescents use in dealing with typical, daily events which might evoke stress reactions. Adaptive processes include coping, defending, and mastery. Children and adolescents are used as subjects in the study to advance the understanding of the developmental and maturational processes of adaptation. Typical students and typical events are considered to be the person and situation variables which interact in a potentially stressful situation. The interaction between the subjects and their perceptions of the situation results in an adaptive behaviour which can be judged psychologically healthy or potentially maladjusted if used over time.

The current study is exploratory in nature and was organized to integrate theory from diverse perspectives. It should be emphasized that it is not presented to show final, definitive results of person-situation interaction and its effect upon adaptive behaviour.

Groups of school-aged children were given short scenarios of everyday school events and asked what they would typically do and how strongly they would be affected by such an event. The scenarios varied in their construction; some were intended to elicit strong behavioural, coping responses and others, stronger psychological,

defensive responses. Responses of perceived stress and adaptive behaviour were then compared to personological and situational variables and external ratings in an attempt to clarify the relationship between variables.

General Design and Delimitations

The descriptive study is based upon theoretical interaction between the person and the situation which was developed in the first four chapters. The assumptions are made that person-situation interaction is reciprocal, that person variables and situation variables are interdependent, and that the interaction between the variables may be additive or interactive in ANOVA sense (see Olweus, 1977). The theoretical relationship can be diagrammed as in Figure 1. The diagram shows the relationship at any given time. If the diagram were continued in time, then the resulting behaviours would have consequences, which in turn would effect the person, his or her perception of the situation, the stress reaction, and future adaptive behaviour.

The design of the study involves nine personological and and personality variables, four situational variables, and four effect variables:

A. Personological and personality variables in the subjects
   1. age
   2. I.Q. score
   3. school marks (achievement)
   4. popularity with peers
   5. grade
   6. sex
   7. parental status
   8. school
   9. judged level of adaptation (by teachers)

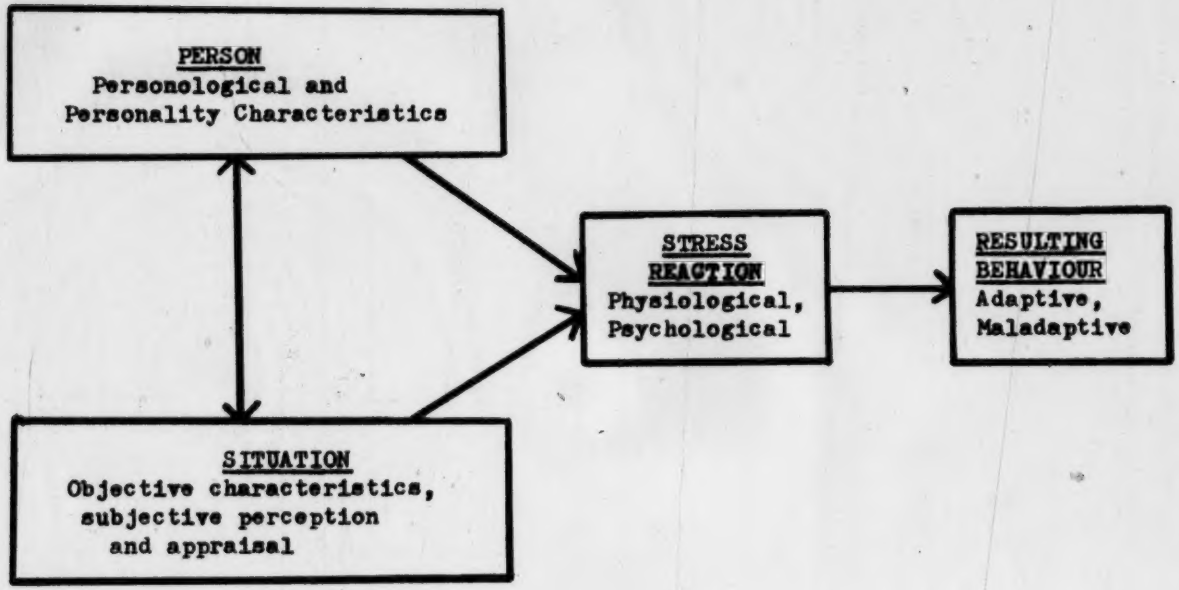


Figure 1. A diagrammatic representation of the theoretical interaction between person and situation (stress situation) and the relationship to adaptive behaviour.

B. Situational variables in the scenarios
   1. positive/negative events
   2. controlled/non-controlled events
   3. anticipated/actual events
   4. threat/loss events

C. Effect variables
   1. adaptation score, as measured by Adaptive Behaviour Scale score
   2. number of different levels of adaptation employed
   3. perceived stress score, as measured by Stress Perception Scale score
   4. number of different levels of perceived stress

Because the assumption was made that person and situation variables are truly independent from each other within the interactional design, traditional notation of independent and dependent variables is not tenable (see Raush, 1977).

The personological variables have been identified as important factors in the study of adaptation with the exception of the last two, parental status and judged level of adaptation. Parental status was included by the researcher after numerous teachers in the field commented that they felt it was an important factor in understanding the adaptive behaviour of their students. Consensus was that students from single parent families were not as adaptive, even though research (Coleman, 1980; Hetherington, 1980) suggests that the atmosphere in the home has more effect on children's emotional adjustment behaviour than the presence or absence of both parents.

Judged level of adaptation by the teachers is one of two variables which could be considered a personality variable and was included as a validity check to self-report and in response to the literature emphasizing mastery. Other personality variables, although believed to be theoretically important in adaptation, were not included in this preliminary study.

Each of the situational variables have been identified as factors influencing the effects of change. The scenarios were written so that the event was generally considered to involve at least one of the four dualities. Subjects were not given a chance to rate their unique appraisal of the scenarios, as to whether they considered them to be negative or positive, controlled or not controlled, anticipated or actual, or involving threat or loss. These variables would seem to be relevant by those authors who encourage studying the personality of the situation.

The four effect variables are dependent upon the personological and situational variables and involve theoretical interaction. Typical students and daily, school events were chosen to encourage variation in responses without overemphasizing one set of variables. When either individuals or the environments studied have been chosen from extremes, they would obviously be more powerful in influencing a stress or behavioural response.

Variation in the type of adaptive response to the scenarios is viewed as indicative of an interaction between person and situation, although the amount of variation attributable to each aspect cannot be ascertained by this study. Likewise, variation of perceived stress would indicate an exact estimation of how such interactions are functionally related to the individual differences in perception of the situation cannot be judged from this design. Variance estimates would be falsely precise in an exploratory study, the aim of which is to identify trends and suggest directions for future study.

Other delimitations of the study include the lack of control for possible intervening variables of family background, cultural

values, motivation, self-esteem, and willingness to self-disclose. Any of these factors could influence a child's level of adaptive functioning, his/her style of coping, or his/her honesty in reporting. The students' responses may reflect their ideal rather than their actual perceptions and behavioural responses due to social acceptability factors; even though care was taken to ensure anonymity and confidentiality (see Procedures). Also, the study does not include any physiological indicators of stress because prior research has not yet adequately described the relationship between physiological and psychological indicators of stress (see Chapter 4) and the design of this study would not clarify that relationship.

Research Hypotheses and Questions

The central research question in the current study is how do the selected personological and situational variables effect perceptions of stress and healthy adaptation. Published theories of stress and of adaptation and empirical research in the fields suggest the relationship between several of the variables. The suggested outcomes and relationships are presented as research hypotheses for the current study. Because the conceptualization of the present study is unique, it is difficult to estimate the relationships between some of the variables; these are posed as research questions. First, the following hypotheses are suggested:

(1) That age, school marks, and popularity are all positively related to healthy adaptive behaviour, as indicated by a high score on the Adaptive Behaviour Scale (ABS).

(2) That I.Q. scores, as measured by the Primary Mental

Abilities inventory or the Lorge-Thorndike Intelligence inventory, are positively related to healthy adaptive behaviour (high ABS score).

(3) That females will show slightly more adaptive behaviour (higher ABS score) but will report more stress (lower Stress Perception Scale, SPS score) than males.

(4) That students from single parent homes will show no difference in adaptation (ABS score) or in stress perception (SPS score) than students from two parent families.

(5) That teacher ratings of adaptation will correlate positively with self-report measures (ABS and SPS).

(6) That positive events will be less stressful (higher SPS score) and evoke more adaptive behavioural responses (higher ABS score) than negative events.

(7) That events where students have control will be less stressful (higher SPS score) and evoke more adaptive behavioural responses (higher ABS score) than events over which students have no control.

(8) That less perceived stress (high SPS score) will positively correlate with more adaptive behavioural responses (high ABS score).

The research questions are formulated as follows:

(1) What is the relationship between age, school marks, popularity (person variables) and perceived stress (SPS score), number of levels of adaptation employed, and number of levels of stress perceived (effect variables)?

(2) What is the relationship between I.Q. score, as measured by the Primary Mental Abilities inventory or the Lorge-Thorndike Intelligence inventory, and perceived stress (SPS score), number of levels of adaptation employed, and number of levels of stress perceived?

(3) Are there differences between schools in the average adaptive behaviour (mean ABS score) and the average amount of perceived stress (mean SPS score) of its students?

(4) Do events which are anticipated or events which actually happen evoke more adaptive behaviour (higher ABS score) and less perception of stress (higher SPS score)?

In order to support the research hypotheses and to tentatively

answer the research questions, the student inventory (combined adaptation and stress scales) must be shown to be both reliable and valid. Past research suggested the construction of the self-report inventory; analysis of empirical evidence must support the theoretical constructs. Therefore a section of Chapter 7 is devoted to establishing reliability and validity of the Adaptive Behaviour Scale and the Stress Perception Scale.

Due to the exploratory nature of the study, the researcher planned to interview individually a randomly selected group of students in each grade. However, due to time constraints on the part of the schools, the researcher was not given permission to conduct personal interviews. Therefore, group discussions were lead after the students had completed the inventory. The purpose of the discussions was to uncover other variables of importance; to examine the cognitive processes involved in responding; to determine if those scenarios judged as being positive or negative, involving control or non-control, threat or loss, or anticipation were actually perceived as such; to indicate to the researcher that the study had face validity from the subjects' point of view; and to gain information to aid in post hoc analysis.

Subjects

Ten classroom groups of school children were chosen for study. Approximately half of the children (N=103) were enrolled in a Grade 3 or a Grade 3-4 split classroom in five elementary schools. The other half of the subjects (N=121) were registered in five Grade 9 classrooms in three junior high schools. The age groups of the students chosen

for the study was determined by four criteria: (1) age groups which have different general developmental skills, (2) age groups for which group intelligence test scores were available, (3) age groups which have the necessary verbal and comprehension skills to complete the exercise, and (4) age groups which were available for testing. The selection of the combination of Grade 3 and Grade 9 students also ensured that both groups of subjects were familiar with their respective school types (elementary or junior high). This consideration was believed to be important since inventory items deal with school concerns.

All subjects were enrolled in schools within the Edmonton Separate (Catholic) School System. The six schools involved were chosen arbitrarily and include Cardinal Leger Junior High, St. Clement Catholic School, Mount Carmel Catholic School, Our Lady of Fatima Catholic School, St. Richard Catholic School, and St. Angela Catholic School.

A general description of the school populations in regards to the socio-economic status includes a range from lower class to upper middle class. The schools are located in areas which range from inner city to distant suburbia, from predominantly multiple-unit dwellings to single family homes, from older to newer areas, from established to transient communities, from the north, west, central, and south in Edmonton. Interviews with the principals of the schools revealed that a number of ethnic groups populated the schools but that no one group predominated and that all students in the particular classrooms were fluent in the English language and Canadian customs.

Classroom groups of children were asked to participate. Only

those students in a selected classroom who failed to obtain parental permission were excluded from the study. In five cases, parents denied permission to participate; in all other cases, students simply forgot to ask parents or did not return the required permission slip. Had any students wished to be excluded or had any been incapable of comprehending the instrument used due to language or other difficulties, they too would have been excluded. No attempt was made to equalize the number of males and females or to insure a broad range of intelligent test scores. No students were enrolled in special education classes or any other type of homogeneously grouped classrooms.

Instrumentation

Student Inventory

The self-report inventory used to measure students' perception of stress and their adaptive behaviour was based upon Vaillant's (1971, 1972; 1974; 1976; 1977) theoretical hierarchy of adaptive ego mechanisms (see Chapter 4) and was prepared for the present study. Vaillant categorized eighteen defense mechanisms into four levels of adaptation, ranging from psychotic defenses to mature coping mechanisms.

The form and style of the inventory roughly follows that of Gleser and Ihilveich (1969) and Schuyz (1972); see Chapter 5 for a review. Subjects were presented with ten short written scenarios describing everyday school events and they were asked two questions after each scenario: (1) what would they do in that situation and (2) how would they feel if the event actually happened. The ten responses to the first set of questions concerning adaptive behaviour

constitute the Adaptive Behaviour Scale (ABS); the ten responses to the second set of questions consitute the Stress Perception Scale (SPS).

Six or seven written choices were given as possible responses for each item on the adaptation scale (ABS). In addition, a blank space was left to enable students to write their own responses if none of the other choices were thought to be appropriate. All except one of the responses illustrate a mechanism of defense defined and categorized by Vaillant. Each group of six or seven responses offers selections from each of Vaillant's four levels of adaptation. For each scenario there is one response which is obstensibly free of defensive reaction, and in each grouping the responses are scrambled in level of adaptation.

The inventory differs from that of Gleiser and Ihilveich (1969) or Schulz (1972) in that the level of adaptation is more important in computing a final score than are the individual defense mechanisms chosen. Scores on the two published inventories suggest the type of defense mechanism an individual typically employs. The Adaptive Behaviour Scale (ABA) inventory suggests the level of adaptation at which an individual is operating. By concentrating on level of adaptation less emphasis is placed upon defining and labelling defensive behaviours. Style of defending is not believed as important as the adaptive characteristics of the behaviour.

Responses range from maladaptive denial or projection to mature coping mechanisms of humour or sublimation in scenarios in which there is little a subject could actually do, or for those in which the behaviour is isolated from the incident. Responses to those stories

in which the psychological response is less apparent, range from maladaptive ways of altering the situation or response. See Appendices B, C, and D for the complete inventories and scoring keys.

The present self-descriptive measure also differs from the published inventories in its inclusion of the Stress Perception Scale (SPS). Five written choices ranging from "fine" to "very upset" are given as possible responses to the question, "how would you feel if the event actually happened?" which is repeated after each scenario is presented.

The scenarios are similar for both age groups of subjects (Grade 3 and Grade 9); only the wording was adjusted to match the interests, activities and abilities of each age. For example, "party" used with Grade 9 students became "birthday party" for Grade 3 students.

A sample question from each of the inventories follows:

From the Grade 3 questionnaire:

2. Imagine that you and your family are moving. You are going to a new city in a different province. You will have to go to a new school. Imagine what it would be like to go to a new school where you don't know anyone. What would you do?

_____ 1. Feel mad at your family for moving.
_____ 2. Get a parent to walk with you to school the first day.
_____ 3. Walk by the school several times the week before school starts.
_____ 4. Hope you will move back to the old city.
_____ 5. Be glad that you are moving.
_____ 6. Hope the school burns down.
_____ 7. Go to the school knowing that you will do okay.
_____ 8. _____

If the story about moving really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable

_____ 3. Very uncomfortable

_____ 4. Upset.

_____ 5. Very upset.

And from the Grade 9 questionnarire:

2. Imagine that you and your family are moving to a new city in a different province this summer. That would mean that you would have to go to a new school. Think what it would be like to go to a school where you don't know anybody. What would you do?

_____ 1. Feel mad at your family for moving.

_____ 2. Get a parent to go with you to school to register on the first day.

_____ 3. Walk by the school several times the week before.

_____ 4. Hope you will move back to the old city.

_____ 5. Be glad that you are moving.

_____ 6. Hope the school burns down.

_____ 7. Go to the school knowing that you will do okay.

_____ 8. _____

If the above situation really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable

_____ 4. Upset.

_____ 5. Very upset.

All the situations are typical real-life, everyday school events. Descriptions were purposely left vague so that students could fill-in detail with their imaginations. For example, in the moving scenario above, the name of a specific city and province was omitted in order that the student could concentrate on the emotional impact of the situation rather than be confused by extraneous detail. In the story about receiving an award (question 4), the researcher asked each class to explain what awards were given in that school and have the students

imagine winning the most coveted of those. In the case of question 8 and 9, the situations are very similar--answering a question incorrectly in class when everybody laughs or when nobody laughs. The slight variation was an attempt to tease out the flexibility of coping responses.

Help in choosing common stressful school situations was obtained from appropriately aged students. Once ten scenarios which were plausible for both age groups had been created, the students were then asked for help in wording the inventory and the responses. Words were chosen which had the most similar connotation among the children.

Teachers of both age groups were asked to peruse the inventory to ascertain the appropriateness of the reading and comprehension level of each inventory. It was judged acceptable for all Grade 9 students and good-readers in Grade 3. However, since the researcher was to administer the inventory orally in addition to providing the written form, the questionnaire was judged to be appropriate overall.

Three additional questions were added to the questionnaire as a result of suggestions by the candidacy examining committee. Question 11 asked that students name their two best friends in the classroom in order that sociogram could be constructed, as a measure of peer cohensiveness. Question 12 asked how each student felt about answering the questions on the inventory. Beyond offering a further measure of adaptation to new situations, this question was included to indentify students who were upset by the questionnaire and in need of counselling. Question 13 asked students to write anything about the test they wished.

Teacher Inventory

The rating scale used by teachers to evaluate adaptation of their students was one developed by Magnusson, Dunér, and Zetterbloom (1975) for use in a longitudinal, inter-disciplinary project dealing with the adjustment of school children. This scale was used in the current study because it incorporated several diverse aspects of classroom adaptation including behavioural as well as psychological responses:

> Certain aspects of the students' extrinsic adjustment are concerned with their behaviour in the classroom situation. This refers to, for example, behaviour that directly influences the work of the class. Other types of behaviour are interesting as indicators of intrinsic adjustment. By this is meant behaviour that may be assumed to be symptomatic of internal stress, dissatisfaction, or lack of motivation (Magnusson et al., 1975, p. 76).

Teachers rate individual students on eight variables on a Likert-type scale: Agressiveness/Warmth, Motor Disturbance/Calmness, Disharmony/Harmony, Lack of School Motivation/Motivation, Distraction/Concentration, Isolation/Popularity; Timidity/Sense of Self, and Tension/Lack of Tension.

The variables were defined by a heading and description of the extreme behaviours. One variable at a time was judged for all students in a given class to counteract the halo effect. Reference groups were students within each class. No statistics in reliability or validity of the instrument were given. Correlation coefficients between the rating variables ranged considerably (see Table 1). The authors concluded the following:

> With the exception of the correlation between the variables Moter disturbance and Timidity, the correlations are all positive. The general tendency is thus for a student to be judged in a similar way

Table 1

Coefficients for the Correlations Between Teachers' Rating Variables

	Seven Scales on Instrument						
	1	2	3	4	5	6	7
Boys							
1. Aggressiveness	.67	.01	.66	.54	.54	.03	
2. Motor Disturbance	-.12	.52	.65	.52	.01		
3. Timidity	.25	.18	.32	.25			
4. Disharmony	.58	.64	.13				
5. Distraction	.76	.14					
6. Lack of School Motivation	.14						
7. Tension							
Girls							
1. Aggressiveness	.58	.09	.62	.51	.54	.12	
2. Motor Disturbance	-.12	.52	.62	.48	.11		
3. Timidity	.29	.23	.39	.41			
4. Disharmony	.64	.65	.35				
5. Distraction	.75	.26					
6. Lack of School Motivation	.16						
7. Tension							

Note. From Adjustment: A longitudinal study by D. Magnusson, A. Dunér, and G. Zetterbloom, New York: Wiley and Sons, 1975.

> in different aspects of adjustment. A scrutiny of the correlation matrices shows, however, that the mutual correlation matrices between five variables are consistently higher than between these and the two remaining ones. This implies that Aggressiveness, Motor disturbance, Disharmony, Distraction and Lack of school motivation tend to form together, for the teachers, a syndrome, separate from Timidity and Tension. (p. 80)

Further investigation to explain the low correlations for timidity and tension involved testing the linearity of the regression lines by calculating the eta-coefficients from the Pearson product moment correlation coefficients. Magnusson et al. concluded:

> It will be observed that it was mainly the regressions of most of the other variables on the variable Tension that deviated from linearity. One feasible explanation of this is that, for this variable, both extremes may be conceived positively, for the description of the "tense" behaviour may be associated with strong motivation. Other variables have, from the aspect of adjustment, a favourable and an unfavourable pole. Further, the elaboration of "behaviour B" in the description of the variable Tension was rather vague. This may have caused different judges to interpret the variable in different ways. (p. 81)

See Appendix E for a copy of the Teacher's Rating of Student Classroom Behaviour.

Pilot Study

Small pilot studies were administered using the Student Inventory with groups of 6 students in Grades 2-4 and Grades 8-10. Necessary changes were implemented in the instructions to add clarity for the younger students; the older group of students found the written instructions to be self-explanatory. The students in each age group involved in the pilot studies found that the word-choice, the events described in the scenarios and the responses

were typical of their age group. Students working individually needed fifteen minutes to complete the inventory whereas groups of students needed almost thirty minutes.

Procedures

Prior to meeting with students, the researcher followed standard procedures to obtain permission to conduct the research project from the Ethics and Research Committee of the Educational Psychology Department, from Field Services of the University of Alberta, from the Research Division of the Edmonton Catholic School Board, and from the principals and teachers of the specific schools. A letter describing the project and permission forms were sent to parents; a signature from parents was required for students to participate in the study (see Appendix A for a copy of the Parental Permission Letter).

The researcher met with classroom groups of students, ranging in size from nine to thirty-five students, and briefly explained the purpose of the study in language comprehensible to the age group:

> I am a student at the University of Alberta and I want to learn about Grade 3 students. I want to learn about what you feel and what you would do in situations that happen at school. I think that the best way to learn about you is to ask you questions. You are the experts. On these sheets I am going to hand out, there are questions which I'd like you to answer. But this isn't a test like most of the tests you have in school because there aren't any right or wrong answers. Also, I am not going to show your answers to anybody, not even your teacher. I am the only one who will see your answers. Do you have any questions?

All questions students asked were answered. The researcher then read the instructions while students followed the written words. Assurances were repeated that there were no right or wrong answers because she would then "learn more about students," and that no one

except the researcher would see their answers. The researcher then read each scenario while the students followed the printed form. Any questions students had which were directly relevant were answered. Other questions were answered after completion of the task. After each scenario students were encouraged to answer what they would actually do. An attempt was made to keep the atmosphere serious but light. The entire procedure took less than forty minutes. After completion of the task any additional questions on any topic were answered. Students were encouraged to offer a critique of the questions. In several classes lengthy discussions ensued. The feedback which students volunteered is included in the discussion section.

During the time the researcher met with classroom groups of students, the teacher assigned to that classroom filled out the Teacher Inventory in another room. Prior verbal instructions were given in addition to the written explanation on the form. Names of students had been filled in on the eight scales to counteract the halo effect and so that teachers were able to concentrate on ratings rather than clerical details in the allotted time.

The last two questions on the Student Inventory were directly concerned with students' feelings and thoughts about the inventory. Upon completion of the group task, the researcher noted the comments made in answers to Question 12 ("How do you feel about answering these questions?") with the intention of referring or counselling these students who demonstrated anxious or upset feelings. However, no student indicated that filling out the inventory had an adverse effect.

Data Collection and Recording

Student Inventory

Responses to the adaptation question following each of the ten scenarios (ABS scale) were scored according to the corresponding level of adaptation from the scoring key with "5" indicating that no no apparent defense mechanism was used and "1" indicating that one of the most maladaptive defenses was employed. When a student wrote his/her own response in the blank provided, it was judged by the researcher to demonstrate a specific defense (or lack thereof) and the corresponding level of adaptation was recorded. See Appendix D for scoring key following the Student Inventory.

Responses to the stress question following each scenerio (SPS scale) was recorded verbatim since the responses indicated level of stress with "5" indicating that the student felt little or no stress and "1" indicating a high degree of stress. Total adaptation scores (ABS score), total stress scores (SPS score), level of adaptation scores (number of different levels of defensive mechanisms indicated), and level of stress scores (number of different levels of stress indicated) were also recorded.

Responses to Question 11 ("Name the two people you like best in this classroom.") were noted to chart the sociograms. As well, the number of students a particular student chose and the number of students who chose him/her was recorded for the statistical analysis. Responses to the last question of the inventory concerning student reaction to the inventory were noted but were not scored or included in the statistical analysis.

Teacher Inventory

Teacher ratings of the eight scales and a total score were recorded for all students with "1" indicating the most maladaptive score and "7" indicating excellent adaptation.

Student Record Card

Demographic data was recorded from computerized student record cards provided by the central office of the Edmonton Catholic School Board. Random identification numbers for the current study were assigned to assure anonymity. The name of schools were coded and recorded. Where a classroom group of Grade 3 students and a group of Grade 9 students from the same school were included, separate coding was used. Current grade (3 or 9), sex, and age (to one decimal place) were recorded. The last available year-end stanine score was recorded to indicate academic performance of a student. As an indication of I.Q., group intelligence test scores were recorded where available. Full-scale scores for the Primary Mental Abilities Test were used for Grade 3 students, and full-scale scores for the Lorge-Thorndike Intelligence Test were used for Grade 9 students. The parental status of students was noted from the listing of parent names on the record card. Three categories were coded and recorded (1) single parent name listed, (2) two parents with the same last name as the student listed, and (3) two parents but with different last names than the student.

Data Processing and Analysis

All data was processed and computer analyzed at the Division of Educational Research (DERS). Simple statistical procedures were used in keeping with an exploratory, descriptive study. The personological variables which are continuous were correlated to the ABS score, the SPS score, and the number of levels of stress perceived and adaptation employed using the Pearson Product Moment program. The mean scores and mean number of levels were compared on dichotomous personological variables and situational variables using analysis of variance (ANOVA) procedures, where $F = t^2$ with two samples. Mean scores on the four effect variables were compared from each of the eight schools by ANOVA, followed by the Scheffé method of group comparison when F was significant. A sociogram was constructed to illustrate the relationship between popularity and stress perception and adaptive behaviour, as measured by the Student Inventory.

Several procedures were used to explore the relationship between perceived stress and adaptive behavioural response. Pearson Product Moment correlation coefficients were obtained by comparing the continuous scores of the two variables. Rank orders of the scenarios, as to the amount of perceived stress and level of adaptive behaviour they evoked, were compared with the Spearman Rho formula. Also, ANOVA was used, followed by a Scheffé, to compare the high, middle, and low groups of scores on the ABS and SPS.

In order to establish the reliability and validity of the instrument several analyses were made. The Kuder-Richardson 20, the Spearman Brown, and the Guttman tests of internal consistency were applied to the data. Also, the general Spearman Brown formula

was used to estimate the reliability coefficient if the number of items on the ABS and SPS were increased to forty, rather than ten. The range and distribution of scores, as well as an item analysis of individual responses on each item and the Kolmogorov-Smirnov formula to establish whether the distribution was normal, were computed to enable a discussion of content validity. The various procedures employed to suggest the relationship between personological and situational variables ("independent") and the effect variables ("dependent") also relate to the construct validity of the inventory. Detailed descriptions of the data analysis, the results, and the preliminary conclusions are discussed in Chapter 7.

Limitations of the Study

The major limitations of the present study has to do with its scope. By theorizing and attempting to empirically support a broad conceptualization of adaptation involving people, situation and stress reactions, the researcher has limited the study to a superficial overview of the area. So many variables and relationships are considered from several different perspectives that none can be studied in depth. Personality factors of the subjects are not considered; subjects are not given a chance to appraise the "personality" of the situations. These two subjective factors are what make person and situation inseparable in their interaction, but they are unmeasurable in the present design.

A specific limitation of the research involves an important theoretical aspect of healthy adaptation: flexibility of response by the subject. It is questionable whether the limited number of items

on the Student Inventory offers a broad enough range of situations to illustrate flexibility of response. Also, that flexibility would have been better measured by summing the number of different types of adaptive behaviour employed rather than the number of levels os adaptation. The choice was made to record number of levels to avoid arguments over the exactness of labels, arguments which are common in clinical discussions of ego mechanisms of defense. A better decision may have been to involve a number of judges to evaluate the labelling of behaviours and then to record the consensus.

In defense of the breadth of the present study, the author feels that current research in adaptation abounds with theories and isolated studies, the conclusions of which suggest a need for a comprehensive conceptualization of adaptation. This study represents an exploratory step in establishing such a theory.

CHAPTER SEVEN

RESULTS AND PRELIMINARY DISCUSSION

The data analysis of the present study is organized by variables: personological, situational, and effect (the perceived stress and adaptive behaviour). For each of the variables the analysis and results are presented; then discussion focuses on supporting or rejecting the research hypotheses, and preliminary conclusions are suggested. Since the acceptance of the research findings is dependent upon an evaluation of the instrument used in the study, a discussion of item analysis, reliability, and validity of the Student Inventory completes the chapter. Implications of the results for the existence of a person-situation interaction in adaptation serves as a summary of the data analysis and is included in the final chapter.

For each analysis in this chapter the levels of significance have been set at less than or equal to .05 and .01. In a few instances where $p < .0001$ the probability is nevertheless reported as $< .01$. In keeping with the aims of an exploratory study those relationships which do not reach statistical significance but suggest trends will also be considered. First, the variables which relate to and serve as mediating variables in a theoretical person-situation interaction are discussed.

Personological Variables

Age

The age of the student correlates positively with all of the effect variables when analyzed with a Pearson Product Moment Correlation. Coefficients range from .09 to .31 and the relationships between age and adaptation score, perceived stress score, and the number of levels of adaptation employed are all statistically significant at the .05 level (see Table 2).

It was hypothesized prior to conducting the study that older students would employ more adaptive mechanisms and, if a positive relationship between less perceived stress (high SPS score) and more adaptive behaviour (high ABS) is expected, then older students should also feel less stressed by the events in the scenarios. Although results confirmed the relationships, the researcher had expected higher correlations than those hovering around the .30 mark for these two effect variables. The results suggest that maturation alone is not sufficient; one needs to develop effective means to cope with stress and to deal adaptively with life events. Practice may indeed help students cope. One Grade 9 student's statement in an interview showed her view:

> What I don't understand about this test was why you asked the questions you did. Sure those things come up. But those aren't the main things we [adolescents] worry about all the time. Yeah we deal with those but we've been doing those things for years.

The fact that the results showed such a low negative correlation (-.09) between age and number of levels of perceived stress indicates that not all adolescents found that the scenarios elicited pat, non-stressed responses. The low negative, yet significant correlation

Table 2

Pearson Product Moment Correlation Coefficients Showing Relationship Between Four Personological Variables and Four Effect Variables

		Effect Variables			
Person Variables	(N)	Adaptation Score (ABS)	Stress Score (SPS)	Number of Levels of Adaptation	Number of Levels of Stress
Age	(203)	.29**	.31**	-.15**	-.09
Marks in School (stanine score)	(170)	.07	.12*	-.09	-.02
I.Q. Score					
PMA[a]	(65)	-.04	-.02	.05	.19
LTI[b]	(111)	.22**	.05	-.13	-.02
Popularity[c]	(197)	.11	.04	.01	.01

[a] Primary Mental Abilities Test, Full-Scale Scores

[b] Lorge-Thorndike Intelligence Test, Full-Scale Score

[c] Number of students who chose them as best friend was used as criteria

* $p < .05$

** $p < .01$

(-.15) between age and number of levels of adaptation is more difficult to interpret. It would seem that older students who as a group are more adaptive tend to choose behaviours from a fewer number of different levels of adaptation. The fact that the correlation between number of levels of age is not as high as adaptation and age could mean that some younger children did not choose behaviours from the more adaptive levels (and therefore had a fewer number of levels but still had low scores), which would indicate the developmental progression toward adaptation, as Vaillant (1977) suggested. However, such a conclusion is premature with these data; too many rival hypotheses are possible.

Marks in School

Students' year-end stanine marks for each school subject taken in the previous year were averaged, and the mean stanine mark was then correlated with the effect variables using the Pearson Product Moment formula to determine the relationship between school marks and stress and adaptation. Marks were available for 170 students and showed coefficients ranging from -.09 to .12, only the correlation between marks and the SPS score was significant at the .01 level (see Table 2). Further consideration of the marks organized by school was thought necessary since stanine marks may not be equivalent across schools. Results showed a broad range of coefficients (see Table 3). The extremes of that range show four significant correlations in the direction expected and seven in the opposite direction. The significant correlation between SPS scores and all schools' stanine marks is due to a strong correlation in one school.

Table 3

Correlation Coefficients (PPM) Showing Relationship of School Marks and Adaptation Arranged by School

School	(N)	Adaptation Score (ABS)	Stress Score (SPS)	Number of Levels of Adaptation	Number of Levels of Stress
A	(17)	.22	.39	-.38	-.01
B	(15)	-.12	.18	-.41	-.34
C	(16)	-.31	.08	-.13	-.08
D	(31)	.01	-.28	.01	.28
E	(45)	.25*	.12	.16	-.30*
G	(19)	.10	.42*	-.17	-.05
H	(27)	.10	.20	.11	-.20
Total	(170)	.07	.12*	.09	-.02

Note. School marks were not available from School F.

* = $p < .05$

** = $p < .01$

The data suggest that there is no relationship between school marks and the adaptive process, as measured by the ABS and SPS scales. It was hypothesized that a positive relationship would be found since it was assumed that a student must adapt well academically to school to achieve high marks, and that academic adaptation was related to psychological adaptation. It would seem from the results that the Student Inventory measures something other than academic adaptation. Certainly none of the content of the scenerios directly involved academic achievement. However, the events included a discipline problem, difficulty in concentration, and answering incorrectly in class; all are events tangentially associated with earning high school marks. Further discussion of these results relates to the validity of the Student Inventory and is included in a later section of this chapter.

Intelligence Test Scores

I.Q. scores, as measured by full scale scores on the Primary Mental Abilities test and the Lorge-Thorndike Intelligence inventory, were correlated with the four effect variables using the Pearson Product Moment Correlation. PMA scores were available for sixty-five of the Grade 3 students, and correlations are near zero, ranging from +.19 to -.04. LTI scores were available for 111 Grade 9 students, and the coefficients range from -.13 to +.22 (see Table 2). The correlation between I.Q. score and the ABS score was significant at greater than .01.

The correlation coefficient for PMA scores and ABS was negative, the sign opposite to that which was hypothesized. The PMA/SPS correlation was also negative, whereas the PMA and number of levels

of adaptation or stress were positive. These results suggest that more intelligent Grade 3 students are slightly less adaptive, slightly more stressed, choose a slightly greater number of levels of adaptation, and distinguish slightly more variation in levels of stress. The coefficients are so near zero that no interpretation can be made except that the two instruments (PMA and combined ABS and SPS) are measuring different constructs.

Results using the LTI scores are more encouraging. More intelligent Grade 9 students seem to be adaptive and perceive slightly less stress in the scenarios. All signs are in the direction expected. A low positive correlation supports the theoretical conclusions of the relationship between intelligence and adaptation developed in the first four chapters of the current study. Definitions of the two terms are similar but not synonymous (see Chapter 2) and conclusions from past research are mixed as to the exact relationship between the two constructs (see Chapter 3).

Weschler (1949; 1974) certainly believed that psychological and behavioural adaptation, such as that measured on the ABS, were theoretically related to intelligence as evidenced by one question on the WISC and repeated on the WISC-R. Question 6 (question 4 on the WISC) of the WISC-R's Comprehensive subscale reads as follows:

> What is the thing to do if a boy (girl) smaller than yourself starts to fight with you? (Wechsler, 1974, p. 63)

In scoring of the item, one is given two points for answering that s/he would not fight, one point for telling the younger child not to fight or for getting help, and zero points for fighting or not not doing anything (p. 92). This item and the scoring of it are very similar to the entire Student Inventory used in the present

study.

However, the above example is only one question on the WISC-R and would not influence overall results even on that subscale. Bane and Jencks (1976) were very critical of the predictive validity of I.Q. tests to identify adaptation to life. They claimed that intelligence tests simply do not measure the skills needed in adult roles and environments, that they are only good in measuring academic performance.

It is the current author's belief that academic adaptation, as measured on intelligence tests, is only a part of the general adaptation to life construct, as measured on the ABS. Therefore, a low positive correlation between the LTI and ABS scores seemed to reflect accurately the relationship between constructs.

Popularity

Popularity with peers was measured by counting the number of students who chose a particular student as one of two "best friends." This superficial measure of popularity was only included in the statistical analysis because the information was available. Students were asked to name their two best friends in order to construct a sociogram. All but four students answered the question although considerably fewer were chosen.

Pearson Product Moment correlation coefficients for popularity and ABS and SRS scores were .11 and .04, respectively; the correlations between popularity and number of levels were near zero (see Table 2).

While it was hypothesized that popularity would correlate positively to adaptation and little perceived stress, the results

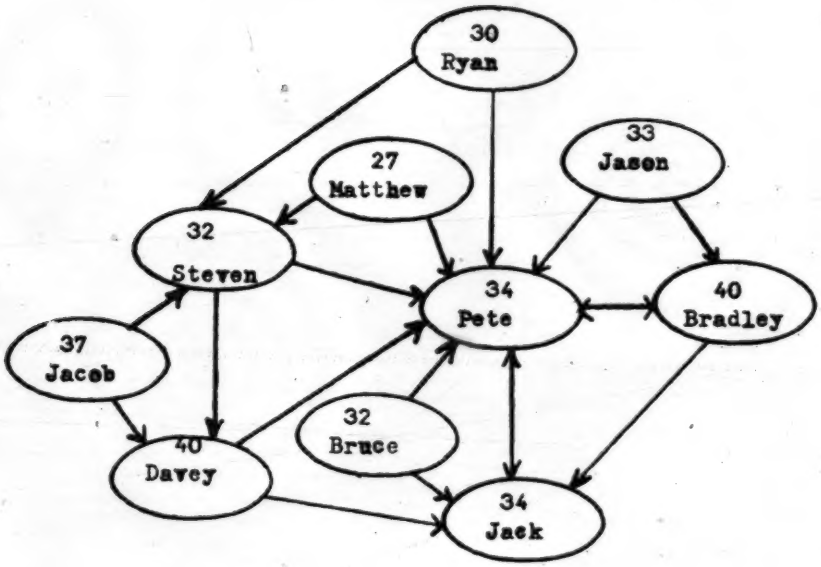
are nevertheless surprising. Observation of children shows that those who continually cry, go to tell the teacher, or always fight are not popular. However, the researcher doubted that such a superficial measure as the one used would suggest that relationship. The data does indicate that popularity and adaptation are positively related, although not significantly.

A sociogram was constructed from data collected in two classrooms, randomly selected, and the results are diagrammed in Figures 2 and 3. All names are changed in the diagrams. In the Grade 3 classroom a clear division of sexes is most obvious, and each sex had a "star," someone chosen five or more times. The two boys in the Grade 3 class with the lowest ABS scores were not chosen, but neither were Jason or Jacob with scores of 33 and 37. The star, Pete, scored 34, close to the Grade 3 mean of 35.55. In the girls' grouping, the star Beth scored 40. One student with a score of 37 chose the teacher as her best friend.

In the Grade 9 gooup, sexes were mixed, but each sex had a star, both of whom scored above the Grade 9 mean of 38.81. The three students not chosen had scores of 34, 38, and 40. The more complex pattern of relatationships in the older group makes interpretation difficult. However, it is noted that those students who chose members of the opposite sex all scored above the mean.

Sex

The mean scores on the ABS and SPS and the mean number of levels of adaptation and sex were compared with a one-way ANOVA with two groups ($F=t^2$). Female means were significantly different (higher) on the number of levels of stress they perceived in the



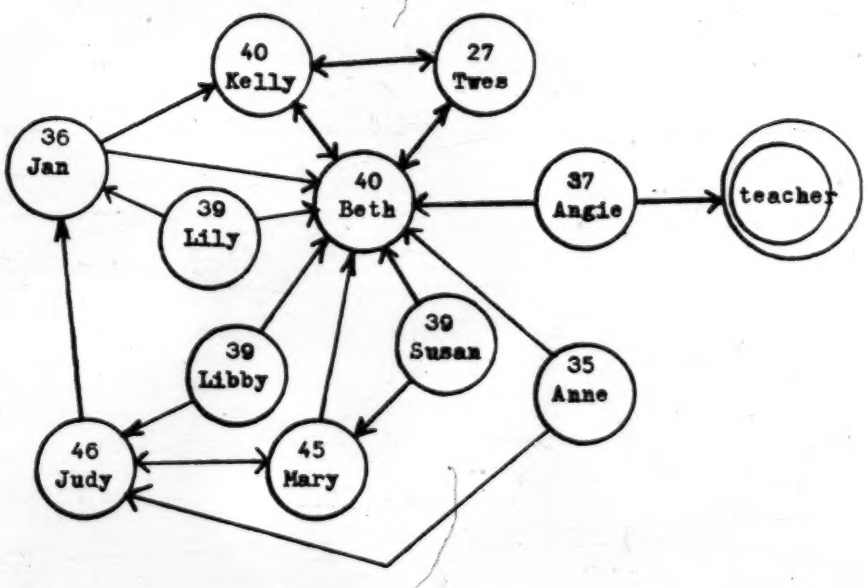


Figure 2. Sociogram for a Grade 3 Classroom. Students were asked to name their two best friends. Scores indicated are Adaptive Behaviour Scale scores (ABS). Note. All names were changed.

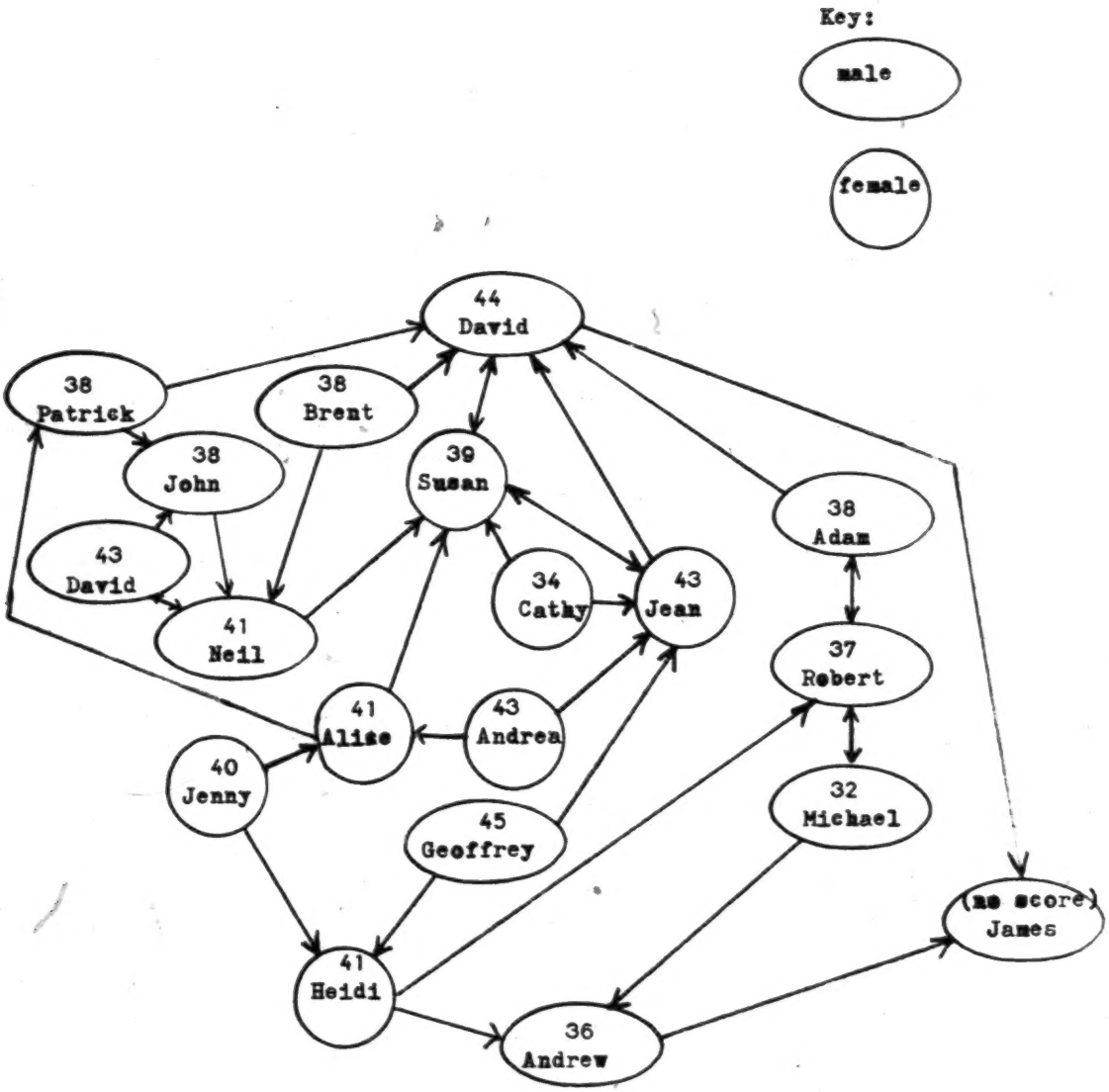


Figure 3. Sociogram for a Grade 9 Classroom. Students were asked to name their two best friends. Scores indicated are Adaptive Behaviour Scale Scores (ABS). Note. All names have been changed.

situations, slightly higher on the ABS score and number of levels of adaptation, and slightly lower on the SPS score (see Table 4).

The data suggest support for the research hypotheses. Past studies (see Chapter 3) have shown that young males react more maladaptively over time as the result of life event stress, such as hospital admission and divorce (Rutter, 1981). If males react less adaptively over time with major events, it was therefore hypothesized that they would score slightly lower on the ABS scale which involves a number of daily events. On the other hand, females have been shown to be better able to discriminate among different stress levels (Erskine et al., 1975) and report more overall anxiety (Ekehammar, 1971). Therefore it was hypothesized that females would have lower scores on the SPS. The significant difference (at the .05 level) between number of levels of stress perceived is further support of past research.

Hoyenga and Hoyenga (1979) cautioned against the use of mean scores to show sex differences, arguing that the sexes differ not so much in amount of stress and level of adaptation but in the type of situations they react to. Because of Hoyenga and Hoyenga's review, slight differences were hypothesized. Further investigation is needed with an inventory containing more items to support past research that males react more to events involving physical prowess and achievement needs, whereas females react more to events threatening affiliation needs. The current Study Inventory contains items which involve threat to one's self-esteem with the emphasis on achievement needs, rather than affiliation needs. Therefore the construction of the instrument is biased towards females receiving

Table 4

Comparisons of Group Means of Three Personological Variables And Four Effect Variables

		Effect Variables			
Person Variables	(N)	Mean Adaptation Score (ABS)	Mean Stress Score (SPS)	Mean Number of Levels of Adaptation	Mean Number of Levels of Stress
Sex					
Males	(110)	36.98	36.38	3.84	3.71*
Females	(93)	37.85	35.76	3.94	3.97
Grade					
Grade 3	(89)	35.55**	34.07**	4.02*	3.91
Grade 9	(114)	38.81	37.68	3.77	3.76
Parental Status					
Single	(50)	37.10	36.32	3.92	4.06*
2 Parent	(120)	37.40	35.58	3.86	3.78

Note. Maximum Adaptation Score (most adaptive) = 50

Maximum Stress Score (least stressed) = 50

Maximum Number of Levels of Adaptation or Stress = 5

* = mean difference, $p < .05$

** = mean difference, $p < .01$

higher (more adaptive) scores. A greater range of items is needed to further distinguish differences between sexes.

Grade

Mean scores on the ABS and SPS and mean number of levels of stress and adaptation were also compared by grade with a one-way ANOVA containing two groups. Grade 9 student means were significantly higher at the .01 level on the ABS and the SPS, significantly lower at the .05 level on the number of levels of adaptation, and slightly lower on the number of levels of stress (see Table 4).

These results are similar to those found when age was compared to the effect variables. The only difference in statistical significance is that age was significantly correlated to number of levels of adaptation at the .01 level where the grades were significantly different on that variable at the .05 level. This difference suggests that subtle variations in age, which was recorded to one decimal place, effect the number of levels of adaptation a student uses. The dichotomous classification of grade does not reflect the age differences within grade; the age variable seems to be the better measure. All other discussions on the relationship between grade and the effect variables are similar to those presented under the Age heading.

Parental Status

The third dichotomous variable where group means were compared with a one way ANOVA was parental status. Student record cards listed parents' names; from these classification was made as to a single or two parent family. A third classification was recorded for students who had two parents listed but whose parents had a different last name

than the student. Since the nature of the family background is unclear in the third classification, these students were not included in the anlysis of the effect of parental status on the four effect variables.

Results from the ANOVA show that the mean scores of students in single parent families are very similar to those in two parent families (all within 1 point) except on the mean number of levels of stress (see Table 4).

Based on past research the hypothesis was made that mean ABS and SPS scores would not significantly differ for students from single parent families as compared to those from two parent families. Results support this hypothesis. The relationship between parental status and the number of levels of adaptation and stress was questioned. The results on that relationship are noteworthy.

The mean score on the SPS for students from single parent families (36.32) is higher and therefore indicates less perceived stress than for students from two parent families (35.58) yet the mean number of levels of stress is higher for the single parent group (4.06 as compared to 3.78, $p < .05$). These results suggest that students from single parent families do not feel any more stress in daily events but they are more discriminating in their perceptions of stress. This finding merits further research in future.

School Membership

A one-way ANOVA was used to compare the mean ABS and SPS scores of the eight different schools sampled in the current study. For adaptation, ANOVA showed an F ratio of 4.75 ($p > .0001$); the subsequent Scheffé showed that the means from School B and School C

were significantly different ($p < .05$) from School D and that the means from School B were significantly diferent ($p < .01$) from School D. Rank order revealed that School B had the lowest ABS means (least adaptive) and that School D had the highest ABS means.

For stress perception, ANOVA yielded an F ratio of 4.94 ($p > .0000$) and the subsequent Scheffé showed the mean scores on the SPS from School G, School C, and School F were significantly different ($p < .01$) from School D. Rank order listed Schools G, C, and F as having the lowest SPS means (most perceived stress), respectively, and School D as having the highest SPS mean.

In this analysis schools were not divided by grade, since age can account for all the reported differences. In both analyses the schools with the lowest means were represented by a Grade 3 classroom and the highest means were from Grade 9 classrooms. Therefore, the research question asking if there are differences between schools in the mean levels of adaptation and stress of their students is unanswerable with the results from the present study. The data showed no statistically significant differences between schools when grade level was taken into account.

Two subjective observations by the present author are relevant here to direct future research; one involves School G and the other, School D. School G was represented by a Grade 3 class and is located in a suburb. The teacher involved in the study was more nervous on both meetings than all but one other teacher; she had been told, rather than asked, by the principal to allow the researcher into the classroom. She did not want to leave the classroom while the research was being completed, and she was unable

to complete the Teacher Rating Scale in the time allotted. In the discussion following completion of the Student Inventory, the students in that class repeatedly made statements which began, "Our teacher says we should do...." In no other classroom discussion was the word "should" mentioned as frequently. Data from that classroom shows the School G is ranked second highest out of five Grade 3 classrooms in ABS score but is lowest of five on SPS score. Could it be that the teacher's influence on moral and social desirability factors is reflected in the relatively high adaptation score yet the students perceive more stress in that atmosphere? The students might also be modelling the teacher's anxiety. Conclusions are premature but the relationship between the subjective observations and the empirical data merits attention in future research.

School D showed the highest rank-ordered means on both the ABS and SPS indicating that its students are the most adaptive and perceive the least stress. Even though the means from School D were not significantly different from other Grade 9 classrooms its rank order is worthy of mention because of its population. Statistics on the socio-economic status were not available, but the principals of the junior high schools estimated that the mean SES of the schools involved would not be significantly different. Each of the schools have students from a variety of backgrounds. However, the population was described as more stable in School D, and some of the students had chosen to travel a distance to attend that school. Further research is necessary to determine the relationship between school environment and the adaptive behaviour and perceived stress of its students.

Teacher Rating of Adaptation

The classroom teachers of the nine groups of students (one teacher had two classes) rated their students, using the inventory developed by Magnusson et al. (1975). Ratings on each of the eight subscales were totalled, and the overall rating was correlated to the four effect variables. Because ratings might not be consistent between teachers, the Pearson Product Moment Correlations were grouped by school. One correlation (.47) was significant at the .01 level, that of ABS and teacher ratings from School B. Five other coefficients showed $p < .05$. Four coefficients were negative (see Table 5). Only one of the relationships between teacher ratings and number of levels of adaptation or stress was significant ($p < .05$), and the coefficients ranged from -.48 to +.35. The number of ratings in each group ranged from 9 to 50.

Magnusson et al. (1975) reported that the seventh and eighth subscales (Timidity/Sense of Self and Tension/Lack of Tension) did not group with the other subscales (see Instrumentation, Chapter 6). Therefore, a second analysis was undertaken using a subtotal of the first six scales compared to ABS and SPS scores. Results were similar to the first analysis: coefficients varied by less than .05, the same coefficients were statistically significant, and the same correlations were negative.

Because the two instruments were designed to measure the same construct from two different viewpoints and because the correlations found were not consistently significant or even uniformly positive, further investigation was undertaken. Teacher ratings were compared (PPM) to school marks by school. Results show that teacher ratings

Table 5

Correlation Coefficients Showing Relationship Of Teacher Ratings of Adaptation to Self-Report Scores and to School Marks, Arranged By School

School	(N)	Adaptation Score (ABS)	Stress Score (SPS)	School Marks (Stanine)
A	(23)	.38*	.32*	.62**
B	(21)	.47**	.07	.12
C	(16)	-.36	-.16	.22
D	(34)	.02	-.15	.57**
E	(50)	.24*	-.13	.56**
F	(9)	.23	.18	--
G	(20)	.39*	.53*	.56**
H	(27)	.30	.08	.58**

Note. Teacher in School C used carbon paper to rate all students exactly alike on all subscales.

*$p < .05$

**$p < .01$

are positively correlated to school marks in all groups and that five of the seven correlations are significant ($p < .01$). A comparison between combined teachers' ratings of the sixth subscale (Isolation/Popularity) and peer popularity, as measured by counting the number of students who chose a particular student in the sociogram question, revealed a Pearson Product Moment coefficient of -.13. And last, a comparison between combined teacher's ratings of the eighth subscale (Tension/Lack of Tension) and the students' self-reported stress score (SPS) showed a PPM coefficient of .02.

It was hypothesized that teacher ratings of adaptation would positively correlate to ABS and SPS scores but the last analysis suggests that the validity of the teacher's ratings is in question. It seems that in five out of seven schools, teachers were basing their ratings upon past school achievement rather than judging students on the constructs described in the Magnusson et al. inventory. The validity of a sixth teacher's rating is doubtful since the teacher in School C used carbon paper to rate all students exactly alike on all subscales.

The wording on the sixth and eighth subscales shows a similar construct to that used in the last two comparisons (see Appendix E). Popularity contrasted to isolation in the sixth subscale and describes students who are very popular, are sought out by their peers, and get along with a variety of students. One would expect at least a positive correlation between ratings on that scale and the number of students who chose an individual as "best friend." Likewise, the eighth subscale involves lack of tension where students who are

natural and do not appear to strain in utilizing their intellectual resources and their personality are contrasted to students who make too great of demands on themselves and strain to succeed. It would be expected that those who were rated towards the "lack of tension" end of the scale would also rate themselves as perceiving less stress (high SPS score). Hence, it would seem that validity of the teachers' ratings or of one of the instruments is questionable. Refer to the discussion of validity of the present instrument presented at the end of this chapter.

In summary, the relationship between nine personological variables and the four effect variables were analyzed. Age, and therefore grade, was found to have a consistently significant relationship to stress and adaptation and, also, accounted for all the differences found between schools. The analysis of sex differences supported the research hypotheses and shows promise in future research. Parental status was found to be an unimportant variable despite beliefs to the contrary from teachers in the field. I.Q. scores and stanine school marks showed mixed relationships and need further research. Popularity could prove to be an important personality variable; the sociograms suggest that leadership, interdependence, and opposite sex friendships (in junior high only) merit more research as potentially critical variables in the study of adaptation. And finally, the teacher rating scale needs to demonstrate reliability and validity before its relationship to the self-report scales in the current study can be determined. Next, the situational variables and their relationship to stress and adaptation are considered.

Situtational Variables

Means, on the ABS and SPS scales for each of the four situational dichotomies were compared using ANOVA. Because age was shown to be a significant variable, further analysis was undertaken to compare means by grade. Results from the total group show that the means of each pair are significantly different at the .01 level except for the threat/loss difference on the SBS, which is significant at the .05 level. When grouped by grade, all pairs reach significance except ABS differences in threat/loss at the Grade 3 level and SPS differences in threat/loss at the Grade 9 level (see Table 6).

It was hypothesized that positive events and events in which subjects have some degree of control would evoke more adaptive behaviours (high ABS score) and less perceived stress (high SPS) that negative events and events over which subjects had little control. The data support these hypotheses in both age groups and in the combined group. Past research on the other two situational variables showed mixed conclusions so research questions were posed as to whether anticipated or actual events and whether events involving threat or loss would show higher mean ABS and SPS scores. Results suggest that in the present anticipated events and events involving loss evoked more adaptive behavioural responses and less perceived stress.

Caution is needed in interpreting the results on these last two variables. Because all the events in the scenarios were imagined rather than real, it is questionable whether the anticipated/actual dichotomy is well represented in the inventory. A question such as

Table 6

Comparison of Group Mean Scores In Four Situational Dichotomies By Grade

	Grade 3 N=87	Grade 9 N=113	Total Group N=200
Positive/Negative Event			
Adaptation Score (ABS)			
Positive	4.07**	4.24**	4.16**
Negative	3.31	3.72	3.55
Stress Score (SPS)			
Positive	4.38**	4.34**	4.36**
Negative	3.01	3.54	3.30
Anticipated/Actual Event			
Adaptation Score (ABS)			
Anticipated	3.86**	4.09**	3.99**
Actual	3.25	3.68	3.50
Stress Score			
Anticipated	4.12**	4.04**	4.08**
Actual	2.90	3.54	3.26
Control/No Control in Event			
Adaptation Score (ABS)			
Control	3.81**	4.07**	3.96**
No Control	3.13	3.66	3.43
Stress Score (SPS)			
Control	3.91**	3.99**	3.96**
No Control	3.13	3.66	3.43

Table 6 Continued

Comparison of Group Mean Scores In Four Situational Dichotomies By Grade

	Grade 3 N=87	Grade 9 N=113	Total Group N=200
Threat/Loss in Event			
Adaptation Score (ABS)			
Threat	3.45	3.58**	3.52**
Loss	3.69	3.96	3.84
Stress Score (SPS)			
Threat	3.29*	3.46	3.39*
Loss	3.68	3.53	3.59

* $p < .05$

** $p < .01$

"What would you do if sent to the principal's office?" is more immediate than the question, "What would you do if you were thinking of a party to which you were invited after school when you were supposed to be writing a school report?" (see Appendix B and C for exact wording of the questions). Therefore immediacy/remoteness might be a better description of situational dichotomy and therefore one could logically assume that immediate events are more stressful than some, distant, nebulous events which might happen. In the literature (Rose, 1980; Ursin et al., 1978) physiological measures of stress have most commonly been used with the anticipated/actual differentiation but the event is usually something more concrete, such as anticipation of divorce versus actual divorce.

Results from the threat/loss distinction do not show as clear a distinction as the other three variables. This may be partially due to the fact that fewer items were combined in order to compare threat versus loss. Only one item on the inventory was a clear case of loss, involving a new city. All other variables (negative, positive, controlled, not controlled, anticipated, actual, and threat) were comprised of a minimum of three items and some combined five means. An inventory with more items would further advance knowledge on the situational mediating variables in stress and adaptation. Also, future inventories which instruct subjects to appraise the situations, for example, judging it negative or positive, are important. In the group discussions with the students the researcher asked them to judge several of the scenarios on the situational criteria. In each case the group's evaluation matched the author's intention. However, group discussions do not encourage an individual student to

disagree and individual appraisal is important within a theoretical person-situation interaction.

Bem and Allen (1974) and Bem and Funder (1978) encouraged the study of the personality of the situation. Table 9 (which appears in the next section) shows the rank order of the scenarios from the Student Inventory, ordered by ABS and SPS score means. Perusal of the content and the rank order of each event gives an indication of group reactions to the situations. Individual rank ordering and accompanying discussion would isolate those factors which most effected that person and parallels Bem and his colleagues' suggestions for studying the traits within a specific environment.

The situational variables together with the personological would typically be considered independent variables. However, the word independent is misleading in a theoretical interaction where person and situation are considered to be inseparable. Next the effect variables, conventionally termed "dependent" are considered.

Effect Variables

The four effect variables include perception of stress as measured by the APS score, and the number of levels of stress and adaptation reported in the two scales. The relationship between these variables was analyzed in four ways: (1) Pearson Product Moment correlation between all four variables, (2) one-way ANOVA comparisons between ABS and SPS scores when the scores are grouped, (3) Spearman Rho rank order correlations between individual items on both scales, and (4) Pearson Product Moment correlations between individual items. For each of these analyses the results, discussion,

and conclusions are presented separately.

Correlation Between Four Effect Variables

The Pearson Product Moment correlations between each of the four effect variables, ABS score, SPS score, number of levels of adaptation, and number of levels of stress are shown in Table 7. The coefficient for the ABS/SPS comparison is .20 ($p < .05$) and the relationship between number of levels of adaptation and stress and ABS and SPS, respectively, are .46 and .57 ($p < .05$).

It was hypothesized that the ABS and SPS scores would show a positive correlation due to the theoretical conception that the level of stress one perceives if an event effects the choice of the adaptive behaviour he or she employs in the situation. When one is more stressed he or she tends to employ lower levels of adaptive behaviour (Vaillant, 1977). The results seem to support the hypothesis. Within the study, factors such as willingness to report situations as being stressful, openness in admitting to socially undesirable behaviour, and ability to discriminate levels of stress all effect the correlation between adaptation and stress.

A research question was posed concerning the relationships between the number of levels of adaptation and ABS, and between the number of levels of stress and SPS. A negative correlation could be expected in both cases due to the design of the study. When one admits higher stress levels or employs less socially accepted behaviours in a few scenarios, his or her scale score (ABS or SPS) goes down and the number of levels (adaptation or stress) goes up. However, the mid-range coefficients found in analyzing the data (-.46 and -.57) suggest that some students fairly

Table 7

Correlation Coefficients Showing Relationship Between Four Effect Variables

Score	N	Adaptation Score (ABS)	Stress Score (SPS)	Number of Levels of Adaptation	Number of Levels of Stress
Adaptation Score	203		.20**	-.46**	-.04
Stress Score	203			-.03	-.57**
Levels of Adaptation	203				-.03
Levels of Stress	203				

*p .05

**p .01

Table 8

One-Way ANOVA Analysis Showing Relationship Between Adaptation and Stress

	Adaptation (ABS) by Stress (SPS)			
Group	SPS Score Range	N	ABS Score Mean	F
High	39-50	65	38.88	F = 4.20
Middle	34-38	72	37.01	P = .01
Low	22-33	66	36.30	

consistently perceived high stress and chose low level behaviours and some students with fairly high scale scores chose a number of different levels. Analysis of the relationship between adaptation and stress in the individual items adds information on this issue, but first, another analysis of the total scores is discussed.

ANOVA Comparison of Total Scores

In addition to the correlation between the total scores, an ANOVA analysis was made to show the relationship between total ABS and SPS scores. Using the frequency distribution of total SPS scores, subjects were divided into three groups (high, middle, and low) and the mean ABS score of each group was compared using a one-way analysis of variance. It was found that $F = 4.20$ ($p = .01$), and the subsequent Scheffé showed the high group was significantly different from, higher than, the low group ($p < .05$). See Table 8. These results suggest further support for the hypothesis that SPS and ABS are positively related.

Rank Order Correlations

Table 9 showed the rank order of the ABS and SPS group means for each of the ten scenarios used in the Student Inventory. Using the Spearman Rho formula the correlation between the rank orders was found to be .78 ($p < .01$).

This high correlation again suggests support for the hypothesis that the level of perceived stress and the level of adaptive behaviour are positively related and gives some information as to the individual differences within that relationship. The rank order comparisons suggest the high relative relationship between perceived stress and adaptive behaviour within the individual. The last analysis

Table 9

Rank Order of Scenarios From Student Inventory

By Adaptation and Stress Score Means

According to Mean ABS Score (from least to most adaptive)

Rank	Mean	Scenario Description	Order in Inventory
1	2.88	Being shoved or pushed by peer	A5
2	2.99	Being made fun of in new clothes	A7
3	3.34	Being sent to the principal's for discipline	A3
4	3.47	Being laughed at for giving wrong answer	A8
5	3.86	Moving to a new city	A2
6	3.91	Anticipating a party while trying to work	A6
7	4.00	Answering incorrectly in class (no laughter)	A9
8	4.27	Winning an award	A4
9	4.30	Being forced to clean room when want to play	A10
10	4.36	Going skiing	A1

Table 9 Continued

Rank Order of Scenarios From Student Inventory

By Adaptation and Stress Score Means

According to Mean SPS Score (from most to least stressful)

Rank	Mean	Scenario Description	Order in Inventory
1	2.73	Being sent to principal for discipline	B3
2	2.93	Being shoved or pushed by peer	B5
3	3.06	Being made fun of in new clothes	B7
4	3.16	Being forced to clean room when want to play	B10
5	3.28	Being laughed at for giving wrong answer	B8
6	3.59	Moving to a new city	B2
7	4.14	Anticipating a party while trying to work	B6
8	4.21	Answering incorrectly in class (no laughter)	B9
9	4.44	Winning an award	B4
10	4.45	Going skiing	B1

between ABS and SPS is needed to further explain the relationship.

Correlation Between Individual Items

Using the Pearson Product Moment formula, responses to the individual items in the ABS and SPS were correlated. The coefficients obtained are listed in Table 10 and range from .08 to .48, seven of them are statistically significant ($p < .01$).

These results suggest a relationship between the level of stress and the level of adaptation in the individual items but a fairly weak one. However, the rank order correlation of the items is strong. It should be noted that the PPM coefficients which are not significant are those items which appear at the extremes of the rank ordering (B3, A5, A10 and B10). The combined results suggest that some students report extreme levels of one scale yet do not report the extreme of the other scale so that the relative comparison (Spearman Rho) is higher than the true score comparison (PPM). For example, a student might receive the full-range of possible scores on the stress scale but choose behaviours which did not represent the full-range of adaptive scores (or conversely). Therefore, the student's rank order correlations would be high but the true score correlations might be low.

In summary, the results from the four analyses used to determine the relationship between the effect variables suggest support for the hypothesis that perception of stress and adaptive behaviour are positively related. However, more research is needed to confirm and further explain the relationships suggested by the current data and findings.

Table 10

Correlation Coefficients Showing Relationship Between Individual Items of Student Inventory

Adaptation Item (ABS)	Stress Item (SPS)	N	Correlation
A1	B1	202	.18**
A2	B2	201	.40**
A3	B3	201	.06
A4	B4	203	.48**
A5	B5	203	.08
A6	B6	203	.28**
A7	B7	202	.17**
A8	B8	200	.32**
A9	B9	203	.28**
A10	B10	203	.10

* $p < .05$

** $p < .01$

The Student Inventory

Acceptance of the reported results and the suggested conclusions in this chapter is dependent upon the reliability and validity of the instrument used, The Student Inventory. An item analysis is the first step in the discussion of these important aspects.

Item Analysis

The Student Inventory is comprised of two scales, one measuring stress perception (SPS) and one measuring adaptation (ABS). Four scores were obtained from the inventory including a total score on each scale and an indication of the numbers of different levels of response contained with each scale score. When the Student Inventory was administered to the 203 students in the current study the ranges, means, and standard deviations listed in Table 11 were obtained.

A frequency polygon was constructed to show the distribution of total SPS and ABS scores and is shown in Figures 4 and 5. To determine if that distribution was normal, a Kolmogorov-Smirnov test for the goodness of fit was applied to the data. Scores of 1.79 ($p = .12$) for the ABS and .90 ($p = .39$) were obtained indicating that the distributions in the current study were not significantly different from normal. Therefore the null hypothesis was not rejected and a normal distribution can be assumed (Siegal, 1956).

Frequency distributions for the individual items on the scales are reported in Tables 12 and 13. A fairly even distribution of responses is shown in both tables and all but two alternatives out of one hundred were chosen. Table 14 gives the Pearson Product Moment correlation coefficients for each individual item and total scale scores. All correlations are significant ($p < .01$) between individual ABS items and the total ABS score and between individual SPS items

Table 11

Ranges, Means, and Standard Deviations of Scores On the Student Inventory

Score	N	Possible Range	Actual Range	$\bar{X}$	SD
Adaptation					
ABS	203	10-50	20-48	37.38	5.37
Levels of Adaptation	203	1-5	1-5	3.88	.73
Stress					
SPS	203	10-50	22-50	36.10	5.77
Levels of Stress	203	1-5	1-5	3.83	.88

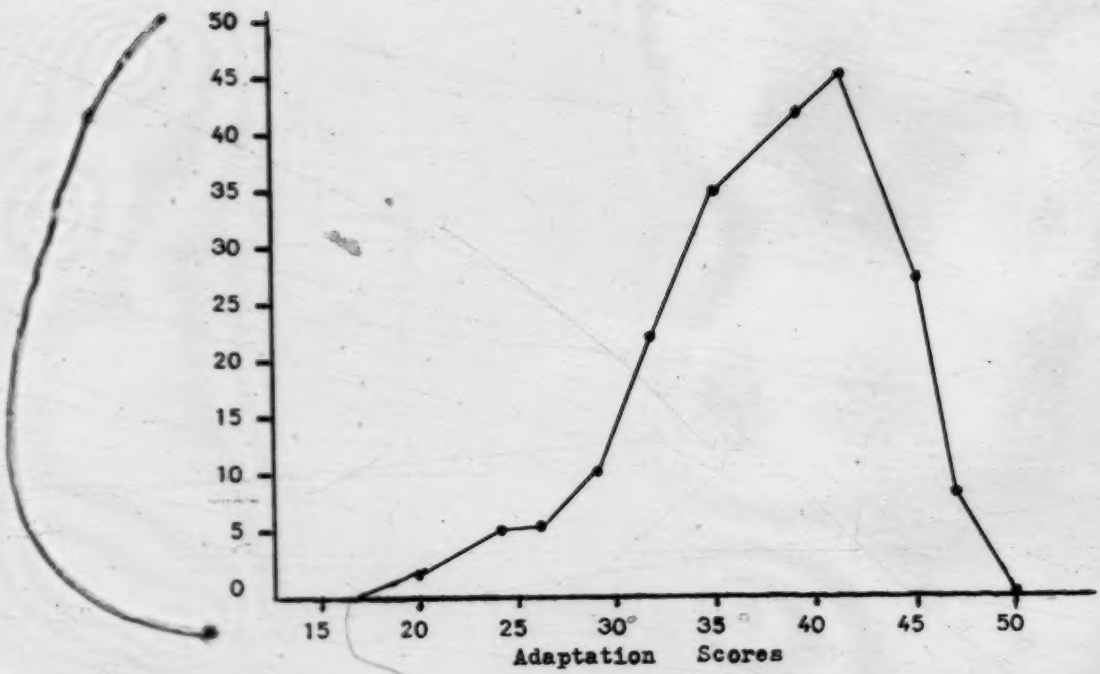


Figure 4. Frequency Polygon of Adaptation Scores (ABS) of 203 Students

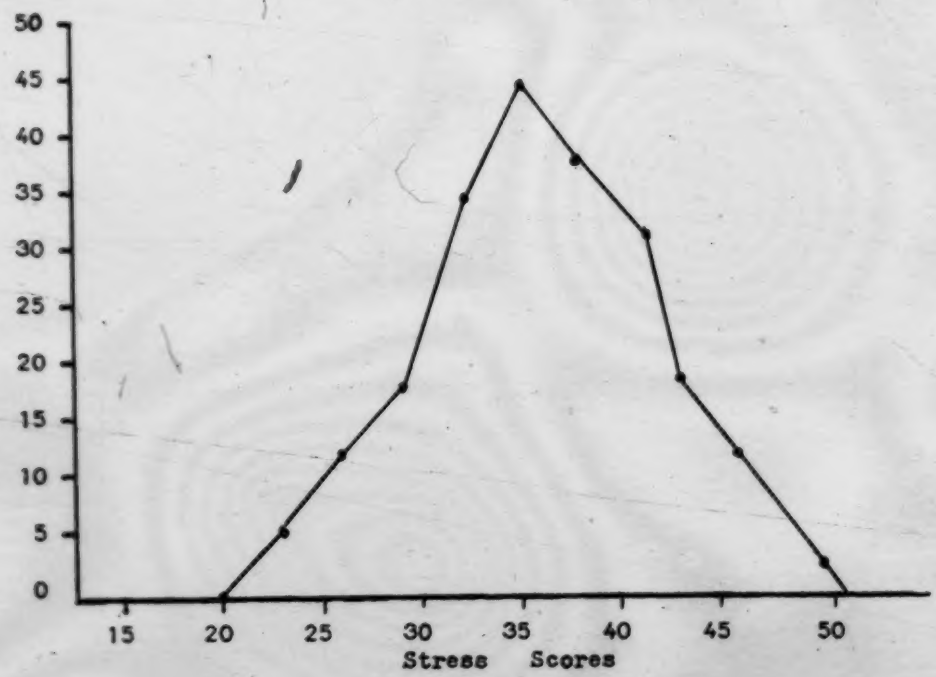


Figure 5. Frequency Polygon of Stress Scores (SPS) of 203 Students

Table 12

Frequency Distribution of Responses to Adaptation Items (ABS) In The Student Inventory

		Levels of Adaptation				
Item Number	N	1	2	3	4	5 (most adaptive)
A1	202	1 (.5%)	6 (3%)	38 (19%)	36 (18%)	121 (60%)
A2	201	7 (4%)	53 (27%)	9 (5%)	25 (12%)	107 (53%)
A3	201	24 (12%)	47 (23%)	39 (19%)	18 (9%)	73 (36%)
A4	203	—	20 (10%)	16 (8%)	57 (28%)	110 (54%)
A5	203	12 (6%)	105 (52%)	26 (13%)	15 (7%)	45 (22%)
A6	202	2 (1%)	38 (19%)	16 (8%)	68 (34%)	79 (39%)
A7	200	19 (9%)	52 (26%)	46 (23%)	82 (41%)	3 (2%)
A8	200	16 (8%)	13 (7%)	76 (38%)	51 (26%)	44 (22%)
A9	203	—	12 (6%)	65 (32%)	36 (18%)	90 (44%)
A10	203	8 (4%)	34 (17%)	1 (.5%)	6 (3%)	154 (76%)

Note. Relative frequencies are noted in parentheses.

Table 13

Frequency Distribution of Responses to Stress Items (SPS) in The Student Inventory

		Levels of Adaptation				
Item Number	N	1	2	3	4	5 (least stressful)
B1	203	4 (2%)	8 ((4%)	7 (3%)	58 (29%)	126 (62%)
B2	200	16 (8%)	28 (14%)	35 (18%)	63 (32%)	58 (29%)
B3	203	42 (21%)	42 (21%)	59 (29%)	38 (19%)	22 (11%)
B4	201	4 (2%)	6 (3%)	17 (9%)	44 (22%)	130 (65%)
B5	203	32 (16%)	81 (40%)	9 (4%)	31 (15%)	50 (25%)
B6	202	12 (6%)	17 (8%)	11 (6%)	53 (26%)	109 (54%)
B7	203	34 (17%)	57 (28%)	22 (11%)	43 (21%)	47 (23%)
B8	201	28 (14%)	34 (17%)	36 (18%)	60 (30%)	43 (21%)
B9	203	6 (3%)	24 (12%)	11 (5%)	42 (21%)	120 (59%)
B10	198	30 (15%)	69 (35%)	9 (4%)	20 (10%)	70 (36%)

Note. Relative frequencies are noted in parentheses.

Table 14

Correlation Coefficients Showing Relationships Between Individual Items and Total Scores on The Student Inventory

Item	N	Total Adaptation Score (ABS)	Total Stress Score (SPS)
Individual Adaptation Items (ABS)			
A1	202	.33**	.08
A2	201	.49**	.19**
A3	201	.58**	.09
A4	203	.40**	.11
A5	203	.40**	-.08
A6	203	.53**	.16**
A7	202	.48**	.03
A8	200	.34**	.21**
A9	203	.45**	.09
A10	203	.53**	.04
Individual Stress Items (SPS)			
B1	203	.16**	.32**
B2	200	.15**	.35**
B3	203	.04	.58**
B4	201	.12*	.25**
B5	203	.07	.50**
B6	202	.13*	.37**
B7	203	.11*	.61**
B8	201	.09	.54**
B9	203	.12*	.44**
B10	198	.02	.47**

* $p < .05$

** $p < .01$

and the total SPS score.

Results from the item analysis of the Student Inventory suggest that total scale scores are distributed normally, that the items discriminate stress perception and adaptive behaviour both within and between subjects, and that the individual items fairly evenly contribute to the total score. From a test construction point of view, the item analysis suggests that The Student Inventory meets typical standards of acceptance.

Reliability

Of the various types of reliability, tests of internal consistency are most appropriate for this study. Three formulas were used and yielded similar results. The Kuder-Richardson - 20 estimate of reliability was .56 for the adaptation scale and .57 for the stress scale. The equal-length Spearman-Brown formula showed coefficients of .51 for the ABS and .55 for the SPS, and the split-half Guttman formula revealed reliabilities of .51 for the ABS and .54 for the SPS. Since the scales contained only ten items, the Spearman-Brown formula for estimating increased reliability with increased test length is relevant. Using that formula, one finds that if the reliability coefficient was .55 for 10 items, then it would be .84 for 40 items (Ferguson, 1981, p.440). If, as Mehrens and Lehmann (1978) suggested, a reliability coefficient of .65 will suffice for purposes of group decisions, then the current inventory approaches acceptable levels, and the estimate of reliability for an increased test length exceeds those levels.

Test-retest and alternate form reliability are also important for adaptation measures, such as the current inventory.

Theoretically, responses on the Student Inventory are a result of person-situation interaction and would therefore vary over time and across situations so that test-retest reliability would be low. However, the design of the current study allows for high theoretical test-retest or alternate form reliability because the actual behavioural responses are scored by level of adaptation rather than being directly classified as specific defense mechanisms, such as in the Gleser and Ihilevich's (1969) and Schutz's (1978) instruments. Therefore, individual behavioural responses can vary as to style (using different ego mechanisms within the same level) over time and in slightly different situations and still show consistency. Since the current instrument was administered only once, test-retest reliability is obviously impossible at present. However, both test-retest and alternate reliability are needed to establish the Student Inventory as a reliable instrument.

Validity

As well as the reliability, the validity of the current inventory must be considered. Establishing predictive or concurrent validity are beyond the scope of the present exploratory study. According to Isaac and Michaels (1979), content validity is especially important for measures of personality and adjustment when the results are based on reponses to specific situations. It is hoped by the present author that the lengthy theoretical discussion of the terms and constructs involved in stress reactions and healthy adaptation suffests content validity for the Student Inventory; buth again, further research is needed to establish this validity.

Construct validity involves whether or not the instrument

actually measures the theoretical constructs it purports to measure. The teachers' ratings of adaptive behaviour were included in the design to suggest construct validity. Results presented earlier in this chapter showed that four of eight teachers' ratings correlated significantly with the ABS scale. However, validity of the teachers' ratings was questioned because their overall ratings showed high correlations with students' school marks, their popularity ratings showed low correlations with another measure of popularity, and their stress ratings were poorly correlated to self-reports of stress. Because only the two measures of adaptation are available in this analysis, the discussion becomes tautological when the lack of correlation between the instruments is used to question the validity of either instrument.

A discussion of the correlations between the instrument and several of the variables included in the present study, such as age or intelligence test scores or the situational variables, could be undertaken in order to reject null hypotheses of construct validity. But the conclusions would have little strength in establishing the validity without some other measure of adaptation, as defined in the current study. Therefore, suggestions of validity have to rest with content and face validity. The latter relies on the similarities between this instrument and the theoretical concepts and hierarchy of adaptation developed and supported by Vaillant (1977) in his longitudinal study.

In summary, then, the item analysis and reliability coefficients reported seem acceptable for an instrument in its development stage. Content validity seems reasonable given that the inventory

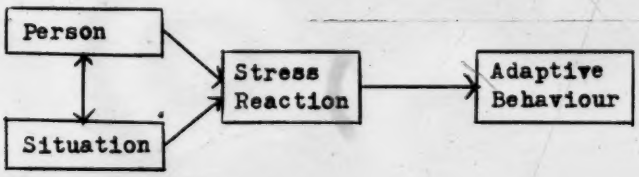
incorporates many conclusions made by past researchers as to the tasks, conditions, and processes involved in adaptation. Construct and criterion-related validity are undeterminable with the present data. Therefore, since the research on the Student Inventory to date shows promise, one can conclude that further research on the instruments is merited.

Using different criteria, students involved in the current study seemed to find the inventory acceptable. Group discussions continued into recess in one class and after the final dismissal bell in another. Several junior groups wanted to talk about coping and defending, while another group wanted to discuss the construction of the inventory and statistics. The Grade 3 students mostly liked to talk about themselves. In response to the last item on the inventory, "Tell me anything you wish about this 'test,'" students frequently wrote "it was fun," or "I learned alot." Only a few noted, "It was great--we missed a whole language arts class."

CHAPTER EIGHT

CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

The design of the present study was based upon the theoretical conceptualization of person variables and situational variables interacting to produce a stress reaction, which influences behaviour choice. In Chapter 6 this theoretical relationship between factors was represented as follows:



Because of the assumptions that person and situation are inseparable in a reciprocal interaction, a researcher cannot isolate aspects of that interaction to support its existence. Therefore, the current author studied the relationships between variables in order to see if the assumption of theoretical interaction could be disconfirmed. Personological, situational, and effect variables were considered; a summary of the findings is in order (Table 15 reviews hypotheses).

Nine personological variables were studied. Age and grade (3 or 9) of the subjects were found to have a statistically significant relationship to the amount of stress students perceived and in the level of their adaptive response. Sex differences only accounted for variations in the discrimination of stress levels at a statistically

Table 15

Summary Table of Findings Showing Support or Rejection of Research Hypotheses

Hypothesis	Supported/ Rejected	Findings	Discussion
1a. That age (and grade) are positively related to healthy adaptation, as indicated by a high Adaptive Behaviour Scale score (ABS).	Supported	Table 2, p. 109 Table 4, p. 119	pp. 108, 110 pp. 120
1b. That school marks are positively related to ABS score.	Rejected	Table 2, p. 109 Table 3, p. 111	pp. 110, 112
1c. That popularity is positively related to ABS score.	Rejected	Table 2, p. 109 Figure 2, p. 116 Figure 3, p. 117	pp. 114-115
2a. That I.Q. scores, as measured by the Primary Mental Abilities inventory, are positively related to healthy adaptive behaviour, as indicated by a high ABS score.	Rejected	Table 2, p. 109	pp. 112-114
2b. That I.Q. scores, as measured by the Lorge-Thorndike Intelligence inventory, are positively realted to high ABS scores.	Supported	Table 2, p. 109	pp. 112-114
3a. That females will show slightly more adaptive behaviour than males (higher ABS score).	Supported	Table 4, p. 119	pp. 115, 118-120

Table 15, continued

Hypothesis	Supported/ Rejected	Findings	Discussion
3b. That females will report more stress than males (lower Stress Perception Scale score, SPS).	Supported	Table 4, p. 119	pp. 115, 118-120
4. That students from single parent homes will show no difference in adaptation (ABS score) or in stress perception (SPS score) than students from two parent homes.	Supported	Table 4, p. 119	pp. 120-121
5. That teacher ratings of adaptation will correlate positively with self-report measures (ABS and SPS scores).	Rejected (Mixed Findings)	Table 5, p. 125	pp. 124, 126-127
6. That positive events will be less stressful (higher SPS score) and evoke more adaptive responses (higher ABS score) than negative events.	Supported	Table 6, p. 129	pp. 128-129
7. That events where students have control will be less stressful (higher SPS) and evoke more adaptive responses (higher ABS) than events over which students have no control.	Supported	Table 6, p. 129	p. 128
8. That less perceived stress (high SPS score) will positively correlate with more adaptive behavioural responses (high ABS score).	Supported	Table 7, p. 134 Table 8, p. 134 Table 9, pp. 136-7 Table 10, p. 139	pp. 132-133, 135, 138

significant level. However, results suggested other sex differences might be distinguished in future research. Parental status was not found to be an important variable relating to either stress or adaptive responses. The analysis of the relationships between both intelligence test scores and school stanine marks and the effect variables showed mixed results. The findings suggest that academic adaptation and psychological adaptation of coping, defending, and mastery are related but separate constructs. The sociograms and the statistical analysis pointed to popularity as a potentially important variable in stress and adaptation research. Differences between schools in the mean stress and adaptation scores could be accounted for by the variation in age of the students, although differences between schools can not be discounted in future research. And last, the teacher ratings of adaptation, an objective person variable, were questioned as to their validity.

The situational variables were conceptualized as dichotomies: negative or positive events, controlled or non-controlled events, anticipated or actual events, and events involving threat or loss. Mean scores of perceived stress and adaptive behaviour were compared for each pair of variables. It was found that events which are either positive, controlled, anticipated or involved loss evoked significantly less stress and more adaptive behaviours than did events having the opposite characteristics. It was suggested that future research should include subjective appraisal of events, possibly by rank ordering situations involving these important dichotomies.

In addition to the personological and situational variables, the effect variables were studied. The relationship between total scores

and between individual item scores on the Adaptive Behaviour Scale and the Stress Perception Scale were analyzed. Findings from three correlational comparisons and a one-way analysis of variance show statistically significant relationships. The results support the hypothesis that less perceived stress (high SPS score) is positively related to more adaptive behavioural responses (high ABS score).

All of the findings in the current study resulted from comparisons between the variables and scores on an instrument designed by the author, the Student Inventory. Acceptable levels of reliability and validity have yet to be established in this instrument, but preliminary analysis suggests that reasonable standards could be achieved in the future. Reliability coefficients were found ranging from .51 to .57 for each of the scales (ABS and SPS) and were estimated at .84 if the number of items were increased.
The item analysis of the inventory revealed that the questions following the scenarios were able to discriminate within and between subjects and that the scores on the two scales (ABS and SPS) were distributed normally with means of 37.38 and 36.10 and standard deviations of 5.37 and 5.77, respectively. Content and construct validity estimates require acceptance of the theoretical concepts presented and discussed throughout the present study.

Looking at the results of the data analysis with reference to the theoretical assumptions in the study, the author believes that a relationship has been established between self-reported psychological stress reactions and adaptive behaviour, as measured by the Student Inventory. As well, the situational variables and some of the personological variables which were considered in the study were shown

to have a relationship to reported stress reactions and hypothetical adaptive behaviour. However, none of the correlations between the situational or personological factors and the effect variables demonstrated strong enough relationships to hint that either set of factors alone could determine the perception of stress or choice of behaviour. Indeed, finding statistically significant correlational relationships between variables from both sets of factors and the effect variables emphasizes the limitations of taking a person or situation orientation to the study of adaptation. Results from the present study suggest further research from an interaction orientation is merited.

The diagram pictured earlier in this chapter shows arrows between the factors and therefore implies cause and effect relationships between the variables. The conclusions in this study are derived primarily from correlational analyses and cannot suggest causal relationships. However, the results from the present study do not negate the existence of a person-situation interaction which determines reactions to stress and choice of adaptive behaviour. Therefore, the author offers a theoretical conceptualization of the healthy adaptation which has not been disconfirmed by the results from the empirical study.

With at least tentative theoretical support, further development of the Student Inventory, or a similar instrument, seems worthwhile. Several possibilities exist for revision. The number of items needs to be increased to assess a greater range of behaviours. If age groups were not being compared, scenarios could include events pertinent to a particular age. Perhaps the scenarios could be

filmed in order to create more realism and to control for individual differences in imagination.

Personality variables assumed in the interaction between person and situation also need to be studied within the Student Inventory. Both the style of behaviour and the levels of adaptation chosen need to be correlated to personal variables such as self-esteem, field dependence, extroversion, and impulsivity. As well, subjective appraisal of each situation should be included in the inventory. Students could be asked to rate the situation as to whether it was threatening or involved loss, for example, and whether or not they had ever experienced the situation. Multivariate analysis of the personality factors of both the person and the situation might demonstrate the complexity of adaptive behaviour and suggest the interaction which theorists assume.

Studying the relationships between physiological measures of stress and actual behaviours and written responses on the Student Inventory might emphasize the role of cognition in adaptive behaviour. Students who can conceptualize as adaptive response, whether or not they act adaptively, score higher on the ABS scale. Perhaps those students with high scores but who demonstrate maladaptive behaviour are able to conceptualize but are unable to control their emotional responses or have stronger visceral reactions. Is conceptualization of an adaptive response an important first step to behaving adaptively? The design of the Student Inventory seems to support that assumption. However, the responses from the students in School G with the nervous, authoritarian teacher make one question that assumption. The students as a group marked responses which were more adaptive than other

Grade 3 groups, but they indicated quite a bit more stress. They seemed to know how to act adaptively, but does their behaviour correspond to their ABS or their SPS responses? Do they act differently away from the influence of that teacher? Are they adaptive or merely responding by rote? Is their high level of stress healthy or unhealthy? Healthy adaptation, as defined in the current study, excludes rote responses and involves choosing from alternatives. It would seem that a moderate amount of stress would best facilitate healthy decision-making. Too many rival hypotheses exist to continue speculating on the answers that the students in School G raised. However, future research on the role of thought in stress perception and adaptation seems important. In the study of cognition and adaptive behaviour the effect of modelling, reinforcement, and punishment in both the immediate and long term can not be ignored.

Revisions of the Student Inventory might enable researchers to use it in educational and clinical settings. The current study focused on assessing adaptation in order to understand individual behaviour. Once the validity and reliability were demonstrated and norms were established, the inventory could also be used for other purposes, such as those reviewed in Chapter 5: to predict future behaviour, to prevent maladaptation, to effect change in individuals, and to restructure maladaptive institutional environments.

Applications for the inventory in predicting future behaviour include school and job placement. An example involves students entering university. This author has talked with many first year students about adaptation and has found that many more students from

rural settings have expressed difficulty coping with university than have students from urban centres. Frequently students have claimed that while the academic work is more difficult, they can manage that part of school. However, having to cope with finding a place to live, feeling lost in a city, having few or no friends, and generally organizing their lives makes many consider dropping-out. The Student Inventory might be used to identify those students, especially rural students who have to face more change, who were less adaptive or experienced extreme stress reactions. Such students might prefer a smaller college environment for a year or more so that they could adapt more gradually.

At the elementary school level, a pre-school form of the Student Inventory could be used as a diagnostic tool to aid in determining readiness for school. As well, the instrument might be used to identify those people who were most suited to a school or job setting requiring exceptional skills in adaptation. In this context, researchers would need to explore the relationship between creativity and adaptation, concepts which seem to be closely allied.

The second purpose, prevention of maladaptation, would seem to be the concern of many educators. Many programmes have been established in elementary and secondary schools which focus on affective education. Assessing student learning in this area is difficult. If age specific forms of the Student Inventory were developed, it could be used as a pre- and post-test to measure change over time in adaptive behaviour and perceived stress. Questions on the Student Inventory involve general adaptive skills. It would be interesting to ascertain whether or not the learning of specific skills in communication or decision

making would generalize to reveal change in Adaptive Behaviour Scale scores or Stress Perception Scale scores.

Third, the inventory could be used to identify students who deviated from the norms. Further investigation of specific responses on the scales and additional interviews would be needed to clarify areas of weakness. Skill training or counselling could then be undertaken, using the inventory as a starting point in discussion. The students involved in the present study certainly had lots to say after taking the inventory.

Perhaps the inventory would be the most helpful with students whose behaviour was generally adaptive and would not otherwise receive special attention. The lack of correlation between student self-reports and teacher ratings of perceived stress in the current study suggest that further investigation is needed. The findings seem to suggest that teachers are not always able to identify those students who feel they are extremely stressed.

M. A. Price (Note 1) has suggested that the Student Inventory might be helpful with learning disabled students. Frequently such students have difficulty thinking of alternative responses or controlling their emotional reactions. Inability to act adaptively in the classroom further blocks their academic achievement. The ABS and SPS scores might help focus the specific problem areas of a student and thereby give direction for training or counselling.

A fourth possible application of the instrument involves using it to provide data concerning the general adaptive environment within institutions and to suggest changes in the situation rather than within the person. K. L. Ward (Note 2) has suggested that the

Student Inventory could be used to evaluate teachers. If one goal of education is to teach students to be adaptive, then a teacher's ability to achieve that goal could be judged by noting the change scores of her students on a pre-test in September and a post-test in June.

Similarly, the Student Inventory could be used to assess the effectiveness of specific environments in developing adaptive skills. Controlled environments such as group homes or adolescent counselling groups might make use of the inventory, since a primary goal of such settings is to facilitate coping behaviours. Teachers and counsellors could evaluate improvement by noting responses a level or more above the student's typical behaviour. However, style of adapting could also be recorded while students were encouraged to try different responses within an adaptive level to promote flexibility of response.

The range of applications for adaptation inventories is broad. However, before speculation on the uses can become reality, a great deal of research is needed to consolidate the underlying theory and develop sound instruments. Given the vast amount of research generated in the area of stress and adaptation, the development of more instruments with varied uses seems plausible. Researchers may indeed meet the challenge of coordinating and organizing a comprehensive view of the adaptive processes of coping, defending, and mastery and the relationship to stress.

That challenge seems worthwhile in light of a Grade 9 student's comment after completing the inventory for the present study;

She said:

> That thing we did was really interesting. It really made me think because I never realized before that I had a choice in what I did when things bothered me. I was really quiet during the class discussion not because I wasn't interested but because I was thinking of all the times when I could have done something different--it might have worked out better.

Her naiveté emphasizes why educators need to study and teach the processes involved in healthy adaptation.

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APPENDIX A

PARENTAL PERMISSION LETTER

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

FACULTY OF EDUCATION
THE UNIVERSITY OF ALBERTA

May, 1983

Dear Parent or Guardian,

Your child has been selected to participate in a University of Alberta study exploring ways children/adolescents adapt to common, everyday school situations. This project has been given general approval by the school board and the principal of your child's school. Two hundred students of various ages will be involved in the study. They will be given short scenerios about common school events and asked what they would do. The stories involve situations such as being pushed by another student, or receiving an honour, or being excited about an event after school. All tasks will be conducted in the child's classroom and will take less than a half hour.

The individual involved in working with the children is a certified teacher with several years of teaching experience. The information gathered for each child will be absolutely confidential.

We hope that you will permit your student to participate as we have found that students both enjoy the tasks and learn from them. The results of the project have a long-range goal of contributing to the understanding of children's and adolescents' adaptive processes.

Would you please sign the below-noted permission form and return it with your child to school at your earliest convenience. If you would like additional information regarding this project please feel free to phone Gretchen Hess at 432-5030 during working hours or at home, 436-1063.

Thank you for your cooperation.

Sincerely,

G. C. Hess

- -

PERMISSION SLIP

I (we) the Parent/Guardian of _____ do give permission for the above child to participate in a University of Alberta Research Project to be conducted by G. C. Hess.

_____
PARENT/GUARDIAN Signature

APPENDIX B

STUDENT INVENTORY FOR GRADE 3 STUDENTS

Appendix B

The text of the Student Inventory given to Grade 3 students follows. Questions 1a-10a comprise the Adaptive Behaviour Scale, ABS; and responses 1b-10b make up the Stress Perception Scale, SPS. The format of the instrument has been changed to comply with binding regulations.

NAME _____

SCHOOL _____

AGE _____

SEX _____

STUDENT INFORMATION SHEETS

Grade 3 Students

Following are several short stories about kids your age. I will read each story as you follow the words. After each story, there are two questions. One question asks what you would do if the story really happened.

This is not a test. There are no right or wrong answers. I just want to learn more about children in Grade 3. I want to learn about how you think about different kinds of things that happen in school.

As I read the story, pretend that it is happening to you. Then choose the best answer, the one which tells what you would do. If you do not think any of the answers are what you would do, write your own answer in the blank space.

The second question after each story asks how you would feel if the story really happened.

Any questions?

1a. Imagine that your class is going on a skiing trip to the mountains. You have all worked very hard to earn the money to go. Pretend that you have never been skiing before. What would you do?

____ 1. Stay home.

____ 2. Get sick and stay home.

____ 3. Feel a little scared but go on the trip.

____ 4. Get mad at your parents for never taking you skiing.

____ 5. Be tough.

____ 6. Think everybody else is probably scared too and go on the trip.

____ 7. _____

1b. If the story about skiing really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

2a. Imagine that you and your family are moving. You are going to a new city in a different province. You will have to go to a new school. Imagine what it would be like to go to a new school where you didn't know anyone. What would you do?

____ 1. Feel mad at your family for moving.

____ 2. Get a parent to walk with you to school on the first day.

____ 3. Walk by the school several times the week before school starts.

____ 4. Hope you will move back to the old city.

____ 5. Be glad that you are moving.

____ 6. Hope that the school burns down.

____ 7. Go to the school knowing that you will do okay.

____ 8. _____

2b. If the story about moving really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

3a. Imagine that you were talking and goofing around in school. You should have been quiet. The teacher was reading. Imagine that the teacher gets mad at you and sends you to the principals's office. What would you do?

____ 1. Walk very slowly to the principal's office.

____ 2. Sneak into the washroom.

____ 3. Feel sick.

____ 4. Quietly go to the principal's office.

____ 5. Get mad at the teacher.

____ 6. Get mad at the principal.

____ 7. _____

3b. If the above story about going to the principal's office really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

4a. Imagine that you won an award for your school work. Tomorrow you will have to walk up in front of the whole school. You will get

your award on stage. What would you do?

_____ 1. Stay home that day.

_____ 2. Walk happily up to the stage.

_____ 3. Make a joke on the way to the stage.

_____ 4. Feel sick.

_____ 5. Pretend that no one is around.

_____ 6. Clown around.

_____ 7. _____

4b. If the story about the award really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

5a. Imagine that you are on the playground at recess. You are playing with your friends. Another kid comes up who is not a friend. Pretend that the kid knocks you down on purpose. What would you do?

_____ 1. Push the kid back.

_____ 2. Go tell the teacher or principal.

_____ 3. Cry.

_____ 4. Think the kid was in a bad mood and forget it.

_____ 5. Make a joke to your friends and go on.

_____ 6. Get your friends to beat up the kid later on.

_____ 7. Stand up, brush yourself off, and keep playing.

_____ 8. _____

5b. If this story really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

6a. Imagine that you are invited to a bithday party after school. All of your friends are going. You are really excited about the party. In the afternoon before the party you have to write a big report in school. What would you do?

_____ 1. Work harder.

_____ 2. Think about the party and how much fun it will be.

_____ 3. Pretend the party is next week.

_____ 4. Clown around.

_____ 5. Explain the problem to the teacher.

_____ 6. Get mad at the teacher for making you work.

_____ 7. The party is not until after school so there is no reason to think about it.

_____ 8. _____

6b. If the above story about the birthday party really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

7a. Pretend that you have some new clothes on. Imagine something that you would really like to have. Imagine yourself in your new clothes. You are very proud of them. A person in your class says, "Yuck, that is ugly!" What would you do?

_____ 1. Make a joke.

_____ 2. Go tell the teacher.

_____ 3. Hit the person who said it.

_____ 4. Pretend you did not hear the person say it.

_____ 5. Walk away thinking the person did not have nice manners.

_____ 6. Never wear those clothes again.

_____ 7. _____

7b. If the above story really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

8a. Imagine that your teacher is going over some work that you studied last week. Pretend that she called on you to answer. You answered the question but you were wrong. Imagine that everybody laughed. What would you do?

_____ 1. Be mad at the teacher.

_____ 2. Make a joke.

_____ 3. Think that everybody is wrong sometimes.

_____ 4. Laugh also.

_____ 5. Work harder in school.

_____ 6. Think that they aren't really laughing at you.

_____ 7. _____

8b. If the story about everybody laughing at your answer really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

9a. Imagine again that your teacher is going over some work. Pretend again that she called on you to answer. Again you answered the question incorrectly. This time nobody laughs. She called on someone else to answer. What would you do?

_____ 1. Be mad at the teacher.

_____ 2. Make a joke.

_____ 3. Think everybody is wrong sometimes.

_____ 4. Listen to the next answer.

_____ 5. Work harder in school.

_____ 6. Think that your answer wasn't all that bad.

_____ 7. _____

9b. If this story really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

10a. Imagine that it is a warm, sunny, beautiful day. Your mother says you have to stay inside and clean your room. You were planning to play outside with some friends. What would you do?

_____ 1. Decide you didn't want to play anyway.

_____ 2. Sneak outside when she wasn't looking.

_____ 3. Clean up your room slowly.

_____ 4. Clean up your room fast.

_____ 5. Mess up your room and throw things.

_____ 6. Yell at your mother.

_____ 7. _____

10b. If the story really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

---

11. Name the two people you like best in this classroom.

_____ and _____

12. How do you feel about answering all these questions?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

13. Say anything about the "test" you wish.

APPENDIX C

STUDENT INVENTORY FOR GRADE 9 STUDENTS

Appendix C

The text of the Student Inventory given to Grade 9 students follows. Questions 1a-10a comprise the Adaptive Behaviour Scale, ABS; and responses 1b-10b make up the Stress Perception Scale, SPS. The format of the instrument has been changed to comply with binding regulations.

NAME _____

SCHOOL _____

AGE _____

SEX _____

STUDENT INFORMATION SHEETS

Grade 9 Students

Following are descriptions of situations which could possibly happen to you. I will read each story and then ask you to mark on the paper what you would do.

There are no right or wrong answers to the questions. I simply want to find out more about how students of your ages react to various events.

In each story, imagine that the event has taken place. Choose the best answer, the one which most closely describes what you would do. If none of the answers seem right for you, write your own answer in the blank space.

The second question following each story asks how you would feel if the situation really happened.

Any questions?

1a. Imagine that your class is going on a skiing trip to the mountains. You have all worked hard to earn the money to go. Pretend that you have never been skiing before. What would you do?

_____ 1. Stay home.

_____ 2. Get sick and stay home.

_____ 3. Feel a little scared but go on the trip.

_____ 4. Get mad at your parents for never taking you skiing.

_____ 5. Be tough.

_____ 6. Think everybody else is probably scared too and go on the trip.

_____ 7. _____

1b. If the story about skiing really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

2a. Imagine that you and your family are moving to a new city in a different province this summer. That would mean that you would have to go to a new school. Think what it would be like to go to a school where you don't know anybody. What would you do?

_____ 1. Feel mad at your family for moving.

_____ 2. Get a parent to go with you to school to register on the first day.

_____ 3. Walk by the school several times the week before.

_____ 4. Hope that you will move back to the old city.

_____ 5. Be glad that you moved.

_____ 6. Hope that the school burns down.

_____ 7. Go to the school knowing that you will be OK.

____ 8. _____

2b. If the above situation really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

3a. Imagine that you were talking and goofing around in class when you should have been quiet. Imagine that the teacher gets angry and sends you to the principal's office. What would you do?

____ 1. Walk very slowly to the principal's office.

____ 2. Walk into the washroom.

____ 3. Feel sick.

____ 4. Quietly go to the principal's office.

____ 5. Get mad at the teacher.

____ 6. Get mad at the principal.

____ 7. _____

3b. If the above situation really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

4a. Imagine that you won an award for school work that you did. Tomorrow you have to walk up in front of the whole school to

receive your award on stage. What would you do?

_____ 1. Stay home that day.

_____ 2. Walk happily up to the stage.

_____ 3. Make a joke on the way to the stage.

_____ 4. Feel sick.

_____ 5. Pretend that nobody else is around.

_____ 6. Clown around.

_____ 7. _____

4b. If the above situation really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

5a. Imagine that you are walking out of the school with some friends on your way home. Another student comes up and deliberately shoves you so that you fall down. What would you do?

_____ 1. Push the kid back.

_____ 2. Go tell the teacher or principal.

_____ 3. Cry.

_____ 4. Think the kid was in a bad mood and forget forget it.

_____ 5. Make a joke to your friends and go on.

_____ 6. Get your friends to beat up the kid later on.

_____ 7. Stand up, brush yourself off, and go home.

_____ 8. _____

5b. If the above situation really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

6a. Imagine that you are invited to a party after school with several of your friends. You all have been planning the party for a long time and know that it will be fun. At school in the afternoon on the day of the party, you have a big report to write. While working on your report, you keep thinking about the party. What would you do?

_____ 1. Work harder.

_____ 2. Think about the party and how much fun it will be.

_____ 3. Pretend the party is next week.

_____ 4. Clown around.

_____ 5. Explain the problem to the teacher.

_____ 6. Get mad at the teacher for making you work.

_____ 7. The party is not until after school so there is really no reason to think about it now.

_____ 8. _____

6b. If the above situation really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

7a. Pretend that you have some new clothes on. It could be a new shirt or leather jacket, if you are a boy, or a new dress or blouse, if you are a girl. Pretend that you really like the new clothes and are proud of them. A person in your class says, "Yuck, that is ugly!" What would you do?

_____ 1. Make a joke.

_____ 2. Go tell the teacher.

_____ 3. Hit the person who said it.

_____ 4. Pretend you didn't hear the person say it.

_____ 5. Walk away thinking the person did not have nice manners.

_____ 6. Never wear the clothes again.

_____ 7. _____

7b. If the above situation really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

8a. Imagine that your teacher is reviewing some work that the class has been studying. Pretend that she called on you to answer. You answered the question but your answer was incorrect. Imagine that everybody laughs. What would you do?

_____ 1. Be mad at the teacher.

_____ 2. Make a joke.

_____ 3. Think that everybody is wrong sometimes.

_____ 4. Laugh also.

_____ 5. Work harder in school.

_____ 6. Think they aren't really laughing at you.

____ 7. _____

8b. If the above situation really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

9a. Imagine again that your teacher is reviewing some work that the class has been studying. Pretend again that she called on you to answer. Again you answered the question incorrectly. However, this time nobody laughs. She called on someone else to answer. What would you do?

____ 1. Be mad at the teacher.

____ 2. Make a joke.

____ 3. Think that everybody is wrong sometimes.

____ 4. Listen to the next answer.

____ 5. Work harder in school.

____ 6. Think that your answer wasn't all that bad.

____ 7. _____

9b. If the above situation really happened, how would you feel?

____ 1. Fine.

____ 2. Uncomfortable.

____ 3. Very uncomfortable.

____ 4. Upset.

____ 5. Very upset.

10a. Imagine that it is a warm, sunny, beautiful day. Your mother says that you have to stay in and clean your room. You were planning to meet some friends of yours at the school. What would you do?

_____ 1. Decide you didn't want to go anyway.

_____ 2. Sneak outside when she wasn't looking.

_____ 3. Clean up your room slowly.

_____ 4. Clean up your room fast.

_____ 5. Mess up your room and throw things.

_____ 6. Yell at your mother.

_____ 7. _____

10b. If the above situation really happened, how would you feel?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

---

11. Name the two people you like best in this classroom.

_____ and _____

12. How do you feel about answering all these questions?

_____ 1. Fine.

_____ 2. Uncomfortable.

_____ 3. Very uncomfortable.

_____ 4. Upset.

_____ 5. Very upset.

13. Say anything about the "test" that you wish.

APPENDIX D

SCORING KEY FOR STUDENT INVENTORY

Adaptive Behaviour Scale

SCORING KEY FOR STUDENT INVENTORY

Adaptive Behaviour Scale

Grade 3 and Grade 9 Students

Level of Adaptation Indicated

1. Going skiing
   (1) 3rd level (Isolation)
   (2) 2nd (Hypochondria)
   (3) 5th (no defense)
   (4) 2nd (Projection)
   (5) 4th (Suppression)
   (6) 3rd (Rationalization)

2. Moving to a new city
   (1) 2nd level (Projection)
   (2) 2nd (Regression)
   (3) 4th (Anticipation)
   (4) 1st (Denial)
   (5) 3rd (Reaction Formation)
   (6) 2nd (Aggression)
   (7) 5th (no defense)

3. Being sent to principal's office
   (1) 3rd level (Repression)
   (2) 1st (Denial)
   (3) 2nd (Hypochondria)
   (4) 4th (Suppression)
   (5) 2nd (Projection)
   (6) 2nd (Projection)

4. Winning an award
   (1) 3rd level (Isolation)
   (2) 5th (no defense)
   (3) 4th (Humour)
   (4) 2nd (Hypochondria)
   (5) 3rd (Disassociation)
   (6) 2nd (Acting Out)

5. Being pushed on playground
   (1) 2nd level (Acting Out)
   (2) 2nd (Regression)
   (3) 2nd (Regression)
   (4) 3rd (Intellectualization)
   (5) 4th (Humour)
   (6) 1st (Acting Out)
   (7) 5th (no defense)

6. Anticipating a party
   (1) 4th level (Sublimation)
   (2) 3rd (Dissociation)
   (3) 4th (Suppression)
   (4) 2nd (Acting Out)
   (5) 2nd (Regression)
   (6) 2nd (Projection)
   (7) 5th (no defense)

7. Being told clothes are ugly
   (1) 4th level (Humour)
   (2) 2nd (Regression)
   (3) 2nd (Acting Out)
   (4) 4th (Suppression)
   (5) 3rd (Rationalization)
   (6) 1st (Denial)

8. Being laughed at
   (1) 2nd level (Projection)
   (2) 4th (Humour)
   (3) 3rd (Rationalization)
   (4) 5th (no defense)
   (5) 4th (Sublimation)
   (6) 1st (Denial)

9. Answering incorrectly
   (1) 2nd level (Projection)
   (2) 4th (Humour)
   (3) 3rd (Rationalization)
   (4) 5th (no defense)
   (5) 2nd (Sublimation)
   (6) 3rd (Rationalization)

10. Cleaning room
   (1) 3rd level (Reaction Formation)
   (2) 2nd (Acting Out)
   (3) 4th (Suppression)
   (4) 5th (no defense)
   (5) 2nd (Acting Out)
   (6) 2nd (Projection)

APPENDIX E

TEACHER RATING SCALE OF ADAPTIVE BEHAVIOUR

Appendix E

The rating scales used by the teachers to judge adaptation of their students follow. When the scales were given to the teachers a list of their students' names and a grid for rating was reproduced for every scale. Teachers simply had to mark the appropriate box. Most teachers were able to complete the scales within forty minutes. The written instructions given to the teachers precede the scales in this section.

TEACHERS' RATINGS OF STUDENT CLASSROOM BEHAVIOUR

Directions to the Teacher-Rater:

A research project has been organized to study the ways that children and adolescents adapt in a school setting. Students will be/have been asked how they would respond to imagined situations.

As their teacher you have seen each student in many real situations. I ask that you rate your students in their adaptation on eight dimensions.

On the following pages are descriptions of the eight dimensions and a list of your students. Please check (✓) the number which corresponds to the best description of each student. The average student should be judged as middle (a check in box 4). The extreme behaviours are described for each scale.

A sample scale follows:

Sample Scale: ISOLATION/POPULARITY

A. They seem to have no friends.

B. They are very popular with their peers.

	Most like Behaviour A			Mean of Class		Most like Behaviour B		
	1	2	3	4	5	6	7	Deg. Cert.
1. John Smith							✓	+
2. Mary Doe				✓				0
3. Elizabeth Jones	✓							+

In the above example, John Smith is very popular; Mary Doe is about average; and Elizabeth Jones only has one friend.

The extreme right hand column is abbreviated "Deg. Cert." for "Degree of Certainity." In this collumn put a plus sign (+) if you know the student very well and feel certain of your response. Put a zero (0) if you aren't as certain of your answer. Place a minus sign (-) in the column if you do not know the student well at all and are not certain of your response.

Thank you very much for the time that you are taking to fill out this form. I really appreciate your help in gathering the data for this project. When you are finished, please return your ratings to me in the enclosed envelope. All responses are confidential.

TEACHERS' RATINGS OF STUDENT CLASSROOM BEHAVIOUR

Scale I

AGGRESSIVENESS/ WARMTH

A - They are aggressive against teachers and classmates. They may, for example, be impertinent and impudent, actively obstructive or incite to rebellion. They like disturbing and quarrelling with classmates.

B - They work in harmony with the teacher and have positive contacts with classmates. Their relations to others easily become warm and affectionate.

Most children are between these two extremes.

Scale 2

MOTOR DISTURBANCE/ CALMNESS

A - They find it very difficult to sit still during lessons. They fidget uneasily in their seats or wish to move about in the classroom, even during lessons. They may also be talkative and noisy.

B - They have no difficulty at all in satisfying even great demands on silence and quietness.

Most children are between these two extremes.

Scale 3

DISHARMONY/ HARMONY

A - They seem very disharmonious and unhappy. They are often in restrained or open conflict with their surroundings or with themselves.

B - They seem to be very harmonious and well balanced, and are seldom involved in serious conflicts with their surroundings or themselves. They seem to be emotionally "at home" in school.

Most children are somewhere between these two extremes.

Scale 4

LACK OF SCHOOL MOTIVATION/ MOTIVATION

A - They give an impression of feeling averse to learning and to the subject, and they seem to experience a general feeling of discomfort in the school, a feeling of being "fed-up" with the school. They are uninterested and it is difficult to get them to take part in ordinary school work.

B - Their school motivation is strong and they feel at home in the school environment.

Most students feel neither "fed-up" with school nor strongly motivated.

Scale 5

DISTRACTION/ CONCENTRATION

A - They cannot concentrate on their work, but are occupied with irrelevant things, or sit daydreaming. For a few moments they may work, but they seem to be soon lost into other thoughts. They usually give up quickly, even when the work is suited to their level of intelligence.

B - They have a marked ability to concentrate on a task and persevere with it. They never allow themselves to be distracted, and do not give up as long as a task is suited to their level of intelligence.

Most children are between these extremes.

Scale 6

ISOLATION/ POPULARITY

A - They seem to have no friends in the classroom. While they will sometimes interact with other children, the relationships never last very long. When peers are choosing students for team sports or group projects, they are always the last ones to be picked.

B - They are very popular with the other students in the class. They are always sought out by their peers in all types of activities. They seem to be able to get along with all different personalities, sexes, and ages.

Most children are somewhere between these two extremes.

Scale 7

TIMIDITY/ SENSE OF SELF

A - The behaviour of such children is characterized by bashfulness and shyness. They seem to have poor self-esteem. They are inhibited and afraid to express themselves.

B - Characteristics of these students include their openness and frankness.

Most children are neither particularly inhibited nor markedly and constantly open.

Scale 8

TENSION/ LACK OF TENSION

A - These students make, in relation to their ability, too great of demands on themselves. They strain themselves to succeed in their tasks. They may be called over-ambitious.

B - They utilize in a natural way their intellectual resources and their personality. Their achievements are therefore often attained without strain.

Most students fall between these two extremes.